ST. FRANCIS HOSPITAL
MEDICAL LIBRARY

LIBRARY
MAY 18 1949
UNIVERSITY OF TORONTO

VOLUME XV JULY 1922 NUMBER 7

Southern Medical Journal

Journal of The Southern Medical Association

Published monthly by the Southern Medical Association, Empire Building, Birmingham, Ala. Annual subscription $3.00 Entered as Second-Class Matter at the Postoffice at Birmingham, Ala., under Act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in Section 1103, Act of Oct. 3, 1917, authorized Dec. 20, 1921.

SOUTHERN MEDICAL ASSOCIATION—Sixteenth Annual Meeting, Chattanooga, Tenn., November 13-16, 1922.

TABLE OF CONTENTS

MEDICINE—Internal Diseases, Pediatrics, Neurology, Diagnostic Methods, Etc.

The Diagnosis of Pulmonary Tuberculosis. Louis Hamman, Baltimore. Md. 523

The Teaching of Infant Feeding. W. McKim Marriott, St. Louis, Mo.. 530

Discussed by McGuire Newton, Richmond, Va.; F. C. Moor, Tallahassee, Fla.; H. Leslie Moore, Dallas, Tex.; John Zahorsky, St. Louis, Mo.; Eugene Rosamond, Memphis, Tenn.; Fritz B. Talbot, Boston, Mass.

A Further Report on the Classification of Birth Paralyses as Endocrines. Lee Ben Clarke, Atlanta, Georgia 534

Endocrines in Children. W W. Harper, Selma, Ala..... 536

Papers of Drs. Clarke and Harper discussed by John Zahorsky, St. Louis, Mo.; A. G. Jacobs, Memphis, Tenn.; Walter J. Otis, New Orleans, La.; Tom A. Williams, Washington, D. C.; Philip F. Barbour, Louisville. Ky.; Oliver Hill, Knoxville, Tenn.

Diverticula of the Esophagus. Chas. G. Lucas, Louisville, Ky..... 542

Discussed by Irvin Abell, Louisville, Ky.

Significance and Diagnosis of Cardiac Anginal Pains. D. D. Paulus, Oklahoma City, Okla. 545

Discussed by Douglas VanderHoof, Richmond, Va.; E. B. Bradley, Lexington, Ky.; John A. Witherspoon, Nashville, Tenn.; W. H. Witt, Nashville, Tenn.; George Dock, St. Louis, Mo.

An Interesting Case of Pellagra in a Young Child. Robert A. Strong, Pass Christian, Miss. 550

Discussed by L. R. DeBuys, New Orleans. La.

(Concluded on Next Page)

JUST OFF THE PRESS

STEVENS' PRACTICE of MEDICINE

Dr. Stevens' new Practice of Medicine (1100 octavo pages) is a personal work because the methods detailed are those which Dr. Stevens has himself found to give the desired results in actual practice. Every clinical diagnostic test is carefully given and the numerous diagnostic tables offer an invaluable help to the general practitioner in determining by elimination the nature of the condition he is called upon to treat. More attention is given to the treatment of disease than in any other work of similar size. In most cases, one definite plan of treatment is given, and that the one which Dr. Stevens has found successful. Naturally, reference to the work of other authorities is made, but the book is essentially a summary of Dr. Stevens' thirty-two years of hospital and private practice.

Octavo of 1100 pages, illustrated. By A. A. Stevens, M.D., Professor of Applied Therapeutics, University of Pennsylvania. Price $7.50

J. A. MAJORS CO.

NEW ORLEANS DALLAS

TABLE OF CONTENTS—Concluded

TROPICAL DISEASES AND PUBLIC HEALTH

The Summer Peak of Infant Mortality in South Carolina 1921: Preventive Measures Instituted. E. A. Hines, Seneca, S. C. 552

Discussed by A. S. Root, Raleigh, N. C.; Robert A. Strong, Pass Christian, Miss.; W. W. Harper, Selma, Ala.

SURGERY—Railway, Industrial, Gynecological, Obstetrical and Urological

Plastic Operations for Defects Due to Noma. J. Shelton Horsley, Richmond, Va. 557

Discussed by Isidore Cohn, New Orleans, La.; W. A. Bryan, Nashville, Tenn.; C. W. Dixon, Douglas, Ark.; A. L. Blesh, Oklahoma City, Okla.; LeRoy Long, Oklahoma City, Okla.

Eclampsia and Pre-Eclamptic Conditions. George H. Lee, Galveston, Tex. 561

Discussed by Calvin R. Hannah, Dallas, Tex.; Chas. B. Reed, Chicago, Ill.; John C. Altman, Nashville, Tenn.; John A. Hatchett, Oklahoma City, Okla.; W. A. Fowler, Oklahoma City, Okla.; Otto H. Schwarz, St. Louis, Mo.; V. B. Cozby, Grand Saline, Tex.; A. P. Dowden, Eminence, Ky.; W. H. Joyner, East Bernstadt, Ky.; Elizabeth C. Kane, Memphis, Tenn.

The More Common Causes of Chronic Urinary Obstruction in Male Children. W. A. Frontz, Baltimore, Md. 570

Discussed by A. J. Crowell, Charlotte, N. C.; H. W. E. Walther, New Orleans, La.; John T. Geraghty. Baltimore, Md.

Frequently Violated Principles in Obstetrics. W. A. Fowler, Oklahoma City, Okla. 577

Discussed by John A. Hatchett, Oklahoma City, Okla.; C. V. Rice, Muskogee, Okla.

EYE, EAR, NOSE AND THROAT

Glaucoma Following Cataract Extraction. Wallace Ralston and Everett L. Goar, Houston, Tex. 581

Discussed by A. C. Lewis, Memphis, Tenn.; Charles A. Bahn, New Orleans, La.; William F. Hardy, St. Louis, Mo.; J. A. Stucky, Lexington, Ky.; John H. Burleson, San Antonio, Tex.; John Green, Jr., St. Louis, Mo.

The Increasing Importance of Peroral Endoscopy. T. E. Carmody, Denver, Colo. 585

Discussed by Robert Caldwell, Little Rock, Ark.; W. L. Simpson, Memphis, Tenn.; Martin E. Taber, Dallas, Tex.; John T. Crebbin, New Orleans, La.; John H. Foster, Houston, Tex.; E. H. Cary, Dallas, Tex.; William W. Potter, Knoxville, Tenn.; Joseph Brown Farrior, Tampa, Fla.; W. T. Patton, New Orleans, La.

EDITORIALS 591

Tendency Toward Operative Obstetrics
"Southern Number" of Archives of Pediatrics
Among the New Journals

BOOK REVIEWS 594

SOUTHERN MEDICAL NEWS 596

THE CELEBRATED

BOOK ON THE PHYSICIAN HIMSELF

FROM GRADUATION TO OLD AGE.

THE CROWNING EDITION

FULL OF VALUABLE SUGGESTIONS

PUBLISHED BY THE AUTHOR, D. W. CATHELL, M. D.

THE EMERSON HOTEL BALTIMORE, MARYLAND.

USEFUL FOR ALL MEDICAL MEN FOR THE NEXT HUNDRED YEARS

THREE DOLLARS A COPY. 360 FULL PAGES

FOR SALE BY ALL MEDICAL BOOKSELLERS, AND THE AUTHOR.

APPLETON'S MEDICAL BOOKS

A New Work of Tremendous Importance

ENDOCRINOLOGY

and

METABOLISM

Presented in Their Scientific and Practical Clinical Aspects by Ninety-seven Contributors.

Since the work of Brown-Sequard, there has been a growing recognition of the relationship between the internal secretions and all the bodily functions.

The increasing knowledge of the importance of the Endocrin System gained during the last few years, has necessitated the bringing together of all accumulated information regarding the subject in such a way as to give the profession a complete scientific and clinical presentation.

If we attempt to analyze the causes for this growing interest in Endocrinology, we find that it is the actual outcome of the study of those perplexing problems with which the physician is constantly confronted in his daily contact with diseases.

The therapeutic efficiency of organic substances is undeniable, when used in definitely indicated conditions.

THE EDITORS

Lewellys F. Barker, Editor in Chief; Professor of Clinical Medicine, Johns Hopkins University.

R. G. Hoskins, Associate Editor for Endocrinology; Professor and Head of Department of Physiology, Ohio State University.

H. O. Mosenthal, Associate Editor for Metabolism; Associate Professor and Attending Physician, New York Post Graduate Medical School and Hospital.

And, moreover, present day medicine proves that analysis of bodily functions enables one to approach more positively, and much more closely, to the cause of our patients' complaints than would the most exhaustive research limited to the study of his anatomy.

It is such therapeutic and diagnostic hope, engendered by definite effects, that is focusing the attention of the entire profession on the Endocrin System.

The two subjects, Endocrinology and Metabolism, are so closely related that, for the most part, when one is normal —the other is; and the reverse is true. In fact, they are to a large degree but cause and effect.

Four Volumes of Text and Separate Volume Containing Complete Bibliography and Index. Price $48.50

S.M.J.-7-22

D. APPLETON & COMPANY
35 West 32d Street, New York

Please send me, carriage prepaid, ENDOCRINOLOGY and METABOLISM, in five volumes, price $48.50, for which I enclose $..... first payment and agree to pay the balance in monthly installments of $.....

Name .....

Street .....

City ..... State .....

Forthcoming Books worth watching for

FEER

PEDIATRICS

This is one of the most celebrated European books written by such famous men as Pfaundler, von Pirquet, Finkelstein, and revised, edited and Americanized by about a dozen western and southern American teachers

MASON

ENDOCRINES

This volume presents in clear and sober manner our present day knowledge of the Endocrines without the addition of any fanciful theories. Translated by F. Raoul Mason, M.D., from the French of P. Lereboullett: P. Harvier: H. Carrion; A. G. Guillaume.

GITTINGS

TUBERCULOSIS IN CHILDREN

Based on lectures given post-graduate men in Philadelphia for the last several years, this book is intensely practical, concise, usable and does not re-cover the ground given in books treating this subject in the adult, but is devoted to the peculiarities of the disease in children alone.

CUMSTON-PATRY

STOMACH THE SURGICAL TREATMENT OF THE NON-MALIGNANT AFFECTIONS OF THE

This book represents the combined experience of American surgeons versed in Continental methods and Continental surgeons fully conversant with Anglo-Saxon methods. It treats those questions that are interesting to both physicians and surgeons, being, in fact, a medico surgical monograph on the subject which, Sir Berkeley Moynihan states in his introduction, is a very necessary book.

WILSON-BRADBURY

INTERNAL MEDICINE

A practice of medicine by practitioners for practitioners arranged for quick reference. Three volumes with a separate index. You can work on the Diagnosis side from the presenting symptom, study it under the title of the disease or the organs affected with concise practical treatment for all conditions coming within the realm of Internal Medicine.

FUCHS

OPHTHALMOLOGY

A new Seventh Edition of this world-famous book entirely rewritten re-set with many improvements suggested by the author, who is now lecturing in this country. Without a question it is the most desirable book on Opthalmology.

REHBERGER

QUICK REFERENCE

This book does for a physician what he would do for himself if he had the time and the facilities. It gathers under one head in its most concise form the available, practical, clinical information needed for quick reference on any subject in Medicine and Surgery. It gives all the facts and all in one place.

J. B. LIPPINCOTT COMPANY

LONDON: Since 1875
16 John St., Adelphi

PHILADELPHIA: Since 1792
East Washington Square

MONTREAL: Since 1897
Unity Building

SERVICEABLE BOOKS

Vol. IV off Press **Ochsner's Surgical Diagnosis and Treatment** Set Now Complete

Surgery as practiced by the most active and successful surgeons of the country. Each writes on the field in which he has gained greatest fame—every detail given as to methods of diagnosis, operative technic, after-care, etc. Beautifully and completely illustrated.

By America's Leading Surgeons—Edited by **ALBERT J. OCHSNER**, M.D., F.A.C.S., Professor of Surgery, University of Illinois; Surgeon-in-Chief to the Augustana and St. Mary's Hospitals, Chicago. Four octavo volumes totalling 3701 pages, with 1914 illustrations, many in colors. General index volume covering entire set, in press now. Cloth, per set, $40.00 net. (In Canada $45.00)

Aaron—Diseases of the Digestive Organs

Embodies everything known today on diagnosis and treatment of all disorders of the entire digestive tract.
By **CHARLES D. AARON**, M.D., Professor of Gastro-Enterology, Detroit College of Medicine and Surgery, etc. Octavo, 904 pages, with 225 illustrations. New (3rd) Edition.
Cloth, $10.00 net.

Hawes—Tuberculosis and the Community

The first book published to deal purely with tuberculosis as it affects the community as a whole. Indispensable to health officers, tuberculosis associations and dispensaries, public health and Red Cross nurses and hygienists.
By **JOHN B. HAWES, 2d**, M.D., Director, Clinic for Pulmonary Diseases, and Assistant Visiting Physician Massachusetts General Hospital, etc. 12mo, 168 pages.
Cloth, $1.75 net.

Sir Thomas Lewis on Auricular Fibrillation and Flutter

This eminent English authority on the Heart will have in the June, July and August issues of The American Journal of Medical Sciences a series of articles dealing with the Action and Value of Quinidine, Atropine and Digitalis and methods of studying clinical reaction. Subscription, $6.00 a year. Send your order now and get these articles.

Craig—Nerve Exhaustion

General practitioners are finding this the most sensible presentation of this condition, if the sale of it is a criterion.
By **MAURICE CRAIG**, M.D., Physician for Guy's Hospital, London, etc. 12mo, 148 pages. New. Cloth, $2.25 net.

Thoma—Oral Roentgenology

The most eminent internists, when making a thorough examination of any patient, include an oral Roentgen examination. The ophthalmologist, the aurist and the laryngologist all have occasion to search in the oral cavity for contributory causes when treating certain diseases. An aid to accurate diagnosis.
By **KURT H. THOMA**, D.M.D., Assistant Professor of Oral Histology and Pathology, Harvard University. Imp. Octavo, 341 pages, with 470 illustrations. New (2d) Edition.
Cloth, $6.00 net.

Pedersen—Urology

Several steps ahead of others. Gives you all in the way of the standard methods of diagnosis and treatment that other books do, but in addition, full technic of physical therapy, electrotherapy in particular, which is now striding into more and more prominence.
By **VICTOR C. PEDERSEN**, M.D., F.A.C.S., Visiting Urologist, St. Mark's Hospital, etc., New York. Octavo, 991 pages, with 362 engravings and 13 colored plates. Cloth, $8.50 net.

S. M. J. ORDER FORM

706-10 SANSOM STREET **LEA & FEBIGER** PHILADELPHIA

Send me books listed on margin. Signed..... 6-22

New Second Revised Edition Just Published

Symptoms of Visceral Disease

A Study of the Vegetative Nervous System in Its Relationship to Clinical Medicine

By Francis M. Pottenger, A.M., M.D., LL.D., F.A.C.P., Medical Director Pottenger Sanatorium, Monrovia, Calif. Author of "Clinical Tuberculosis," "Tuberculin," "Muscle Spasm and Degeneration," "Tuberculosis and How to Combat It," etc.

357 pages, 6x9, illustrated with 86 halftones, line drawings and charts, and 10 full-page color plates. Second revised and enlarged edition. Price, silk cloth binding, $5.50.

Pottenger believes that the patient who has the disease should receive equal consideration to the disease which has the patient.

¶ Few books published in recent years have received such a cordial reception as Pottenger's Visceral Disease. The now second edition has been revised and brought up to date with new text matter and new illustrations.

¶ The physician will welcome this new edition, because it shows the physiologic basis for many of the symptoms commonly met in disease, offers a means for understanding their vagaries as met in his practice, stimulates interest in the patient's reactions and affords a basis for their better understanding. In short, it emphasizes the importance of more accurate clinical observation and interpretations of symptoms, thus aiding in the better understanding and enjoyment of that phase of medicine upon which we are just entering, in which the patient who has the disease is to receive a consideration equal to the disease which has the patient.

¶ The book is beautifully illustrated with many halftones and line drawings. Especially valuable are the ten full-page color plates.

Send for a copy of this new edition today

C. V. MOSBY COMPANY—*Medical Publishers*—**ST. LOUIS, MO.**

THE
PROBLEM SOLVED

So many demands are being made upon the time and energies of the physician that he is forced to adopt efficient time-saving methods. One of his most pressing problems is that of keeping advised of the latest advances in his profession.

WE HAVE A PRACTICAL SERVICE

approved by many eminent physicians, which is furnished monthly and comprises the best of medical practice in convenient, time-saving form.

A PERSONAL SERVICE BUREAU

is prepared to supply special information on any medical subject. Those who have used it are highly pleased with the unusual facilities we place at their disposal.

LET US HELP YOU

This coupon addressed to us will bring full particulars and description of our work.

AMERICAN INSTITUTE OF MEDICINE, Inc.

13 East 47th Street New York

American Institute of Medicine, Inc.
New York

Please send me full particulars of your work.

.....

.....

.....

S.M.J.-7-22

A "New Light" to illumine the way!

The MEDICAL INTERPRETER

Is the Physician's "Lamp of Knowledge" that "Lights the Way" to the things of today.

The progressive Doctor knows that he "does not know everything," that he cannot "rest his oars" altogether on his accumulated fund of knowledge, the outcome of his experience. The world moves fast. What is new today may be obsolete tomorrow. He must be a "student of the times." Medical science is not a stationary element. It moves ever foward; swiftly, driving its shafts through obscurities and uncertainties, drawing in its vortex the world's greatest medical minds; contribuating in their research and experiment inestimable good to humanity; the mitigation of suffering; the hastening of cures. These "minds" are working through the MEDICAL INTERPRETER; using it as a vehicle to bring before the medical profession of America the new attitudes, ideals and epochs of medicine and surgery; results brought up to the moment, fresh in the vigor of immediate performance; established in the annals of successful accomplishment.

The MEDICAL INTERPRETER is the "Literary Digest" of medicine and surgery: an International resume of NEW developments, the authentic PROVEN facts established by conclusive experiment from every quarter of the globe; presented in terse, clear, concise, short and interesting language, indexed and cross indexed so that every subject is immediately accessible.

Please sign and mail coupon for complete particulars. The MEDICAL INTERPRETER is the most valuable equipment the physician can acquire.

IF IT'S NEW—IT'S IN THE MEDICAL INTERPRETER

MEDICAL INTERPRETER CO.

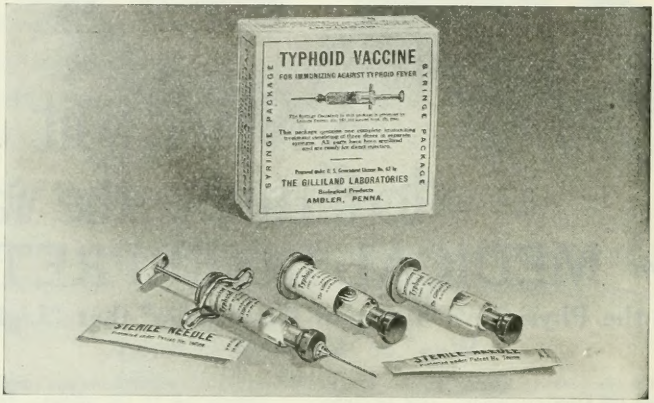
(Southern Branch)

ATLANTA - - - - GA.

THE MEDICAL INTERPRETER CO., ATLANTA, GA.
☐ Send your Representative ☐ Mail Information
☐ Send Books
Check either square for immediate attention
Name.....
Street.....
City.....
State.....

To the Medical Profession of Alabama:—

GILLILAND TYPHOID VACCINE



Special Price

3 Syringe Package (1 Treatment)	$1.00
3 Ampul Package (1 Treatment)	.35
30 Ampul Package (10 Treatments)	2.75

Order from your nearest Distributor specifying the GILLILAND LABEL. In the event that your Distributor cannot supply you, then order direct from the Antitoxin Division, Alabama State Board of Health, Montgomery.

GILLILAND Products are used and approved by your State Board of Health.

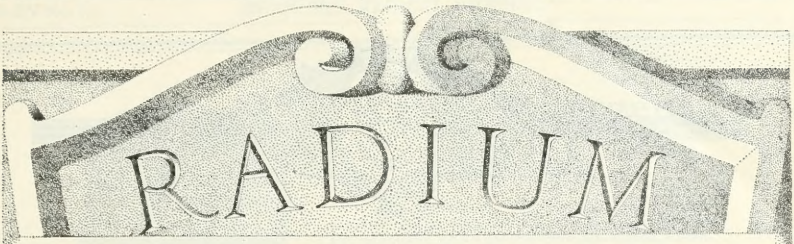
THE GILLILAND LABORATORIES

Producers of Biological Products

AMBLER, PENNA.

Laboratories:

Ambler, Penna. **Marietta, Penna.**



TWO PERCENT RADIUM INSURANCE

It gives us pleasure to announce to physicians interested in radium that the Insurance Company of North America will write radium insurance at two percent a year. For a loss under this policy the insurance company is liable for 75%.

When the great advances in radium insurance rates went into effect, we immediately took steps to obtain for physicians an acceptable policy at a reasonable premium. This announcement is the result.

Many owners of radium have been consulted regarding the policy which the Insurance Company of North America will issue and all have expressed approval of it. The policy is a liberal one. It contains no limiting clauses regarding the use of the element or the manner in which it shall be guarded while in use. We believe it will prove to be of value to you.

United States Radium Corporation

58 Pine Street, New York City

Factories: Orange, N. J. **Mines: Colorado, Utah**

COMPLETE oral hygiene as practised by nurses and other attendants is not only recognized as good administration, but is a necessary precautionary measure adopted by medical directors, superintendents and superintendents of nurses in the safeguarding of patients.

Interest in sanitary, healthy mouths of hospital personnel grows steadily. The subject will receive even more attention in the future.

Colgate's Ribbon Dental Cream does all that a dentifrice can do in cleansing the teeth and maintaining oral hygiene.

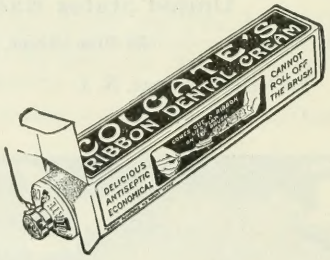
A generous supply of samples will be sent postpaid to professional friends upon request.

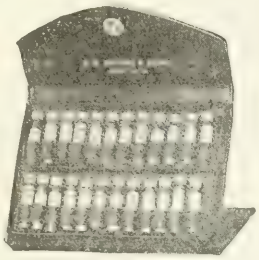
MEDICAL DEPT.

COLGATE & CO.

Established 1806

New York, N. Y.





Group Allergens Squibb

The importance of testing patients with a large number of different proteins has emphasized the need for combining into a series of group allergens, a number of the closely allied individual ones.

In cooperation with Dr. W. W. Duke, a series of 27 such groups have been developed for diagnostic purposes, each mixture, with but few exceptions, containing five allergens, and the endeavor has been to group them on the basis of actual clinical observation.

These group mixtures materially lessen the number of tests required and makes it possible to test each patient with a larger number of proteins with less inconvenience and in shorter time than would otherwise be involved.

The following groups are now available:

Vegetables (5)	Fruits (3)	Nuts (2)	Cereals
Meats (2)	Fowl	Fish (2)	Mollusks (2)
Condiments	Beverages	Egg and Milk	Hair and
Feathers	Pollens (2)	Bacterial (3)	Dander (2)

Thyroxin

Prepared Under License of the University of Minnesota.

Pure Crystalline Thyroxin is the physiologically active constituent of the thyroid gland; a compound of definite and known chemical composition containing 65% of iodine, organically combined as an integral part of the molecule.

Fifteen grains of desiccated thyroid prepared under favorable conditions contains approximately 1/64 grain of Thyroxin.

Thyroxin is marketed in two forms—Tablets containing the partially purified sodium salt for oral administration, and the Pure Crystalline Thyroxin for intravenous administration in cases where the product is not absorbed quantitatively when given by mouth.

Complete information on request

E·R·SQUIBB & SONS
MANUFACTURING CHEMISTS TO THE MEDICAL PROFESSION SINCE 1858

RELIABILITY
UNIFORMITY PURITY EFFICACY

Rheumatism
Gout
Neuralgia
Neuritis
Sciatica
Lumbago
Migraine

What shall it profit the patients?

to have their sufferings relieved if it's done by throwing into their most vital body machinery a monkey wrench like colchicum, the salicylates, or the old-time coal-tar derivatives—heart-depressants, kidney-irritants, intestine-disturbants.

Genuine ATOPHAN, devoid of all these drawbacks, is manufactured at our Bloomfield, N. J., plant by a special process, precluding the possibility of even traces of unpleasant empyreumatic admixtures.

Complimentary Trial Package and Information from

SCHERING & GLATZ, Inc.
150 Maiden Lane, New York.

RADIUM RENTAL SERVICE

Radium loaned to physicians at moderate rental fees, or patients may be referred to us for treatment if preferred.

Careful consideration will be given inquiries concerning cases in which the use of Radium is indicated.

BOARD OF DIRECTORS

William L. Baum, M. D. N. Sproat Heaney, M. D. Frederick Menge, M. D.
Louis E. Schmidt, M. D. Thomas J. Watkins, M. D.

The Physicians Radium Association

1105 Tower Building, 6 N. Michigan Ave.
Telephones: Randolph 6897-6898 CHICAGO, ILL. William L. Brown, Manager

We Are Prepared

TO FURNISH THEORETICAL AND PRACTICAL INSTRUCTION IN RADIUM THERAPY.

TO KEEP YOU INFORMED OF THE MOST RECENT DEVELOPMENTS IN THE TECHNIQUE AND DOSAGE OF RADIUM APPLICATION THROUGH OUR PUBLICATIONS.

TO FURNISH RADIUM SALTS OF HIGHEST PURITY, SOLD UNDER U. S. BUREAU OF STANDARD'S CERTIFICATE

TO FURNISH THE LATEST TYPE OF APPLICATORS, ACCESSORIES AND SPECIAL INSTRUMENTS TO MEET OUR CLIENTS' NEEDS.

THE RADIUM COMPANY OF COLORADO
RADIUM BUILDING, DENVER, U. S. A.

BRANCH OFFICES

SAN FRANCISCO
582 MARKET ST.

CHICAGO
853 PEOPLES GAS BLDG.

NEW YORK
244 MADISON AVE.

AT THIS SEASON

a capable lactic culture will be found of notable value both to the pediatrician and to the general practitioner.

By prescribing **B. B. CULTURE** for use in "baby cases", the physician is assured of obtaining a product in which purity, ease of administration and effectiveness are combined.

Our depository stores are located throughout the South.

B. B. CULTURE LABORATORY, Inc.
Yonkers, New York

EXEMPLIFYING 1922 HEALTH PRINCIPLES FOR THE YOUNG

THE WINSLOW HEALTH SERIES

By
C.-E. A. WINSLOW
Professor of Public Health, Yale Medical School, and Curator of Public Health, American Museum of Natural History

The Land of Health
By Grace T. Hallock and C.-E. A. Winslow
For the lower grades.

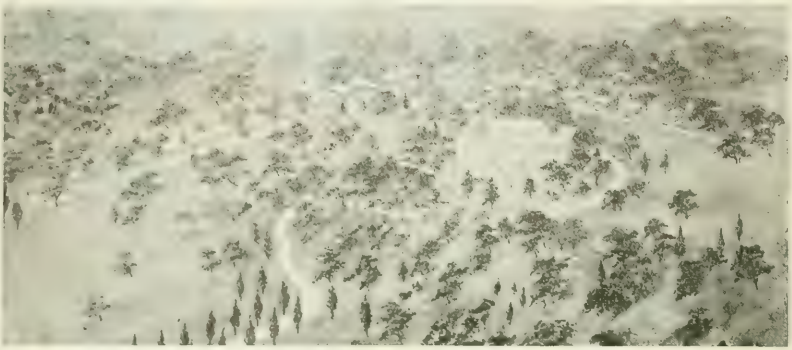
Healthy Living, Book One
By C.-E. A. Winslow
For the intermediate grades.

Healthy Living, Book Two
By C.-E. A. Winslow
For the upper grades and the junior high school.

Each book contains a chapter on physical exercise by Walter Camp.

CHARLES E. MERRILL CO.

NEW YORK CHICAGO



Hill Crest Sanatorium,

FOR THE TREATMENT OF TUBERCULOSIS
In The Mountains of Southwest Texas

Altitude 1500 feet; mild winters. Cover necessary every night during Summer. Cottages beautiful, hollow tile and stuccoed, glassed in and screened, supplied with all modern conveniences. Thirty miles from San Antonio, on old Spanish trail and a rise of 800 feet.

For further information apply to Hill Crest Sanatorium, Boerne, Texas.

Prices $25 and $30 per week.

DR. W. E. WRIGHT, Supt. and Med. Director.
DR. L. S. JOHNSON, Med. Dir. and Res. Physician.
R. W. KLEIN, Bus. Mgr.

Westbrook Sanatorium, Richmond, Virginia

THROUGH THE MEDICAL STAFF,

DOCTORS JAS. K. HALL, P. V. ANDERSON AND E. M. GAYLE

WISHES TO ANNOUNCE TO THE PROFESSION THE OPENING ON NOVEMBER FIFTEENTH OF AN ADDITION TO THE INSTITUTION OF TWO BRICK BUILDINGS—ONE FOR MEN AND ANOTHER FOR WOMEN.

THE PLANT now consists of nine separate buildings situated in the midst of grounds which embrace eighty-five acres. The lawn is large and beautifully shaded; there are private walks and drives, and the institution affords the quietness and serenity of the country within sight of the city.

Rooms may be had single or en suite, with or without private baths. Small cottages, suitable for one patient, are also available.

Treatment is limited to Nervous Disorders, Mild Mental Affections, and to Alcoholic and Drug Habituation. Nurses and attendants are trained for this special work and the Sanatorium furnishes every facility for the rational treatment of such patients.

Life in the out-of-doors, combined with properly selected work for each patient, constitutes an important therapeutic measure.

The three physicians live at the Sanatorium and devote their entire attention to the patients.

BOOKLET UPON REQUEST

PINE-CREST MANOR

SOUTHERN PINES, N. C.

For Care and Treatment of the Tuberculous.

Fine-Crest Manor is located one mile from town limits of Southern Pines. Site of buildings on crest of hill, surrounded by long leaf pines, overlooking Southern Pines Country Club and Golf Links.

An ideal all-the-year round climate. Neither too cold in winter nor too warm in summer, dry and invigorating the year round.

All buildings new and modern throughout. Completely equipped. Our own farm, poultry and dairy products. Excellent cuisine.

Rates range $25.00 to $50.00 a week. Descriptive booklets upon request. Address for further information

DR. J. W. DICKIE,
Medical Director,
Southern Pines, North Carolina.

View from Sleeping Porch at Zephyr Hill

ZEPHYR HILL
Asheville, N. C.
For the Care of the Tuberculous

Beautifully located on its 17 acre grounds, surrounded by unsurpassed mountain scenery. Homelike atmosphere—trained nursing. Steam-heated building. Both individual and group sleeping porches.

Conducted exclusively for the private patients of

Doctor C. H. Cocke, Coxe Building, Government St., Asheville, N. C. and Doctor J. W. Huston, Drhumor Building, Asheville, N. C.

SOUTHERN PEDIATRIC SEMINAR

ASHEVILLE, N. C. **SALUDA, N. C.**

BLACK MOUNTAIN, N. C.

A two weeks course in the fundamentals of the study of the child in health and disease to be given at the above centers beginning July 31 to August 12, inclusive. This is the second year. Lectures will be given by the following men among others:

R. M. Pollitzer, M.D., Charleston, S. C.
Wm. A. Mulherin, M.D., Augusta, Ga.
Frank Howard Richardson, M.D., Brooklyn, N. Y.
Wm. P. Cornell, M.D., Columbia, S. C.
Lawrence T. Royster, M.D., Norfolk, Va.
William Weston, M.D., Columbia, S. C.
M. L. Townsend, M.D., Charlotte, N. C.
Lewis W. Elias, M.D., Asheville, N. C.
John LaBruce Ward, M.D., Asheville, N. C.
C. V. Akin, M.D., U. S. Public Health Service.
H. H. Harrison, M.D., Asheville, N. C.
W. L. Funkhouser, M.D., Atlanta, Ga.
E. A. Hines, M.D., Seneca, S. C.
Robert Wilson, Jr., M.D., Charleston, S. C.
Francis Johnson, M.D., Charleston, S. C.
D. Lesesne Smith, M.D., Saluda, N. C.

W. A. MULHERIN, M.D., DEAN

For further information address

D. LESESNE SMITH, M.D., Registrar,
Saluda, N. C.

CHESTNUT LODGE

Rockville, Maryland

Near Washington, D. C. Baltimore & Ohio Railroad and Electric Line from Washington

This sanitarium under experienced management offers superior advantages for the treatment of patients suffering from Nervous and mild Mental Diseases, and for elderly persons needing skilled care and nursing; combining the equipment of a modern Psycopathic Hospital with the appointments of a refined home. The Hydrotherapy Departments is complete in every detail including the Nauheim Baths for Arteriosclerosis, Heart and Kidney Diseases.

DR. E. L. BULLARD, Physician-in-Charge

OXFORD RETREAT

OXFORD, OHIO

Nervous and Mental Diseases
Alcohol and Drug Addictions
FOR MEN AND WOMEN

96 Acre Lawn and Forest. Buildings Modern and First Class in all Appointments. Thoroughly Equipped. Of Easy Access—39 Miles from Cincinnati, on C H.&D. R.R. 10 Trains Daily.

THE PINES

An Annex for Nervous Women

Write for Descriptive Circular

HARVEY COOK, M.D., Physician-in-Chief

VON ORMY COTTAGE SANATORIUM

For the Treatment of Tuberculosis

VON ORMY, TEXAS

W. R. GASTON, Manager F. C. COOL, Assistant Manager R. G. McCORKLE, M.D., Medical Director

Ideally located near San Antonio, Texas. An institution that offers the proper care of tuberculous patients at moderate rates. For booklet and other information please address the manager.

ST. ELIZABETH'S HOSPITAL

Richmond, Va.

MEDICINE AND SURGERY CONDUCTED UNDER THE GROUP SYSTEM

Staff

J. Shelton Horsley, M.D. ..... Surgery and Gynecology
Warren T. Vaughan, M.D. ..... Internal Medicine
Austin I. Dodson, M.D. ..... Surgery and Urology
Fred M. Hodges, M.D. ..... Roentgenology and Radium Therapy
Helen Lorraine ..... Medical Illustrator, Roentgenology
Margaret Tholens, B.A. ..... Clinical Pathology
Nellie H. Van Dyke, B.S. ..... Dietetics
Thos. W. Wood, D.D.S. ..... Dental Surgery

Administration

Myra E. Stone, R. N. ..... Superintendent
Julian P. Todd ..... Business Manager

THE HOSPITAL—30 ROOMS

Dr. J. F. Yarbrough's Private Sanatorium

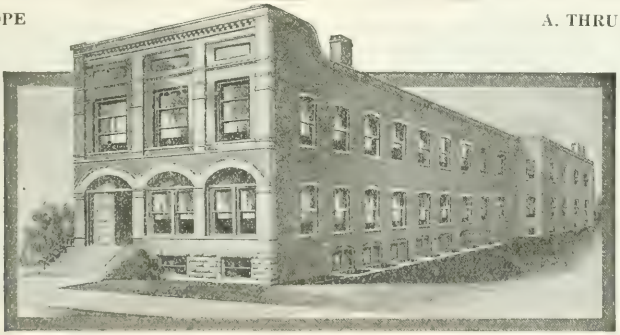
COLUMBIA, ALA.

Gastrointestinal Diseases, Pellagra,
Chronic Rheumatism, "Bright's Disease,"
Diabetes (Allen Method),
Adequate Night Nursing Service Maintained.

CONSULTING STAFF.

Dr. Alfred Smith Frazier, F.A.C.S., Dothan, Ala.
Dr. Ross H. Mooty, B.S., M. D., Columbia, Ala.
Reference: The profession of Houston County.
Dr. S. W. Welch, Montgomery, Ala.

CURRAN POPE A. THRUSTON POPE



A MODERN up-to-date, private Infirmary equipped with steam heat, electric lights, electric fans, modern plumbing and superior furnishings. Solicits all cases of functional and organic nervous diseases, disease of the stomach and intestines, rheumatism, gout and uric acid troubles, drug habits and alcoholism. Bed-ridden cases not received without previous arrangement.

Hydrotherapy, Mechanical Massage, Static, Galvanic, Faradic, Sinusoidal, High Frequency, Leucodescent and Arc Light, and X-ray treatments given by competent physicians and nurses, under the immediate supervision of the Medical Superintendent. Special laboratory facilities for diagnosis by urine, blood, blood serum, sputum, gastric juice, duodenal tube and X-ray. Recreation hall with pool and billiards for free use of patients.

Rates include treatment, board, medical attention and general nursing. The Sanatorium is supplied from Pope Farm with vegetables, fruit, poultry, and eggs, also milk, cream, butter and buttermilk from its herd of registered Jerseys.

THE POPE SANATORIUM

Long Distance Phones
CUMB. M. 2122 HOME 2122

(Incorporated Established 1890)

LOUISVILLE, KENTUCKY
115 West Chestnut St.

OKLAHOMA CITY CLINIC

and

WESLEY HOSPITAL

FULLY EQUIPPED FOR CO-OPERATIVE DIAGNOSIS, MEDICINE AND SURGERY

CLINICAL, PATHOLOGICAL AND CHEMICAL LABORATORY

Completely equipped in all departments.

PARTIAL FEE TABLE

Wassermann Test	$ 5.00
Autogenous Vaccines	5.00
Tissue Diagnosis	5.00
Blood Smear	2.50
Sputum	2.50
Blood Chemical Tests, single	3.00
Blood Chemical Tests, complete	20.00
Pasteur Treatment, 21 doses	25.00

Daily Wassermann "runs" except Sunday.

FREE: Bleeding tubes, sterile containers, culture media, instructions for collecting and mailing specimens.

MEMBERS OF CLINIC

Dr. A. L. Blesh
Dr. W. W. Rucks
Dr. M. E. Stout
Dr. J. Z. Mraz
Dr. W. H. Bailey
Dr. D. D. Paulus
Dr. J. C. Macdonald

X-RAY DIAGNOSIS

An up-to-date Radiological Laboratory, including Buckey Diaphragm and all modern equipment.

Especially prepared for gastro intestinal and renal studies.

RADIUM

Address all communications to Wesley Hospital, 12th and Harvey Sts., Oklahoma City, Oklahoma

Wallace-Somerville Sanitarium

SUCCEEDING THE PETTEY & WALLACE SANITARIUM

MEMPHIS, TENN.

WALTER R. WALLACE, M. D. WILLIAM G. SOMERVILLE, M.D.

FOR THE TREATMENT OF

Drug Addiction, Alcoholism, Mental and Nervous Diseases

[illegible] of the city. Sixteen acres of beautiful grounds.

All equipment for care of patients admitted.

WM. RAY GRIFFIN, M.D.
M. A. GRIFFIN, M.D.
Physicians in Charge.
MAY LOWE, R. N.
Supt. of Nurses.

APPALACHIAN HALL

ASHEVILLE, N. C.

ADVISORY BOARD:
C. V. Reynolds, M.D.
M. H. Fletcher, M.D.
C. L. Minor, M.D.
W. L. Dunn, M.D.

For the Treatment of Nervous Diseases

Located in a beautiful park of twenty-five acres, in one of the famous all-the-year-round health resorts of the world, where climate, air, water and scenery are unsurpassed. Five separate buildings, thoroughly modern, afford ample facilities for the classification and separation of patients.

Treatment is limited to Nervous and Mental Diseases, Selected Cases of Alcoholic and Drug Habituation.

Hydro-therapy, Electro-therapy, Occupational-therapy and Massage extensively used. The two physicians in charge reside in the Institution and devote their entire time to the care and treatment of the patients.

For information and booklet write Drs. Griffin and Griffin.

Hospital For General Diagnosis and Nervous Diseases

"NORWAYS"

1820 E. 10th Street, Indianapolis, Ind.

An institution devoted to the Research, Study and Diagnosis of all problems in Medicine and Surgery, especially of conditions involving the Nervous System. All newer methods of Diagnosis, particularly the Chemistry of the blood, spinal fluid, secretions and excretions of the body are employed. The importance of body metabolism and its relation to diseased conditions is emphasized.

The co-operation of physicians is invited. It is the policy of this Hospital to return patients to their home and family physician for treatment, at the earliest possible moment, after a diagnosis is made. Only at the request of the patient's physician will any case be kept in the Hospital beyond the necessary period of observation.

A complete staff of skilled specialists in co-operation.

For further particulars regarding rates, etc., write

DR. ALBERT E. STERNE or
DR. LARUE D. CARTER

"Norway" Hospital for General Diagnosis and Nervous Diseases.

THE TORBETT SANATORIUM AND DIAGNOSTIC CLINICS

With The Majestic Hotel and Bath House and The Bethesda Bath House

One Hundred Twenty-five Beds.
Sixty-four Quick Filling Tubs.

A modern institution equipped with all the latest laboratory, X-ray, dietetics and physio-therapy methods used in the diagnosis and treatment of chronic diseases. A graduate doctor in charge of each department—thus utilizing group work. Marlin hot water is similar to the famous Carlsbad.

STAFF.

J. W. Torbett, B.S., M.D., Supt., Diagnosis and Internal Medicine.
O. Torbett, Ph.G., M.D., Asst. Supt., Diagnosis and Internal Medicine.
W. K. Logsdon, M.D., Syphilology, Urology and Dermatology.
Edgar P. Hutchings, M.D., Eye, Ear, Nose and Throat.
J. B. White, Ph.C., M.D., Roentgenology and Gastro-enterology.
F. A. York, M.D., Medical Gynecology and General Medicine.
Emma Beck, M.D., Pathology.
S. P. Rice, M.D., Obstetrics and General Practice.
L. P. Robertson, D.D.S.
H. H. Robertson, D.D.S.
Miss Winifred Spruce, R.N., Supt., and Dietetics.
Miss Lina Elder, R.N., Asst.

For further information write for folder to
TORBETT SANATORIUM, MARLIN, TEXAS.

STUART CIRCLE HOSPITAL

RICHMOND, VA.

ESTABLISHED IN 1913 AS A

DEPARTMENTAL CO-OPERATIVE

GROUP HOSPITAL

SURGERY:

Stuart N. Michaux, M.D
Charles R. Robins, M.D.

MEDICINE:

Alex. G. Brown, Jr., M.D.
Manfred Call, M.D.

OBSTETRICS:

Greer Baughman, M.D.
Ben H. Gray, M.D.

OPHTHALMOLOGY, OTO-LARYNGOLOGY:

Clifton M. Miller, M.D.
R. H. Wright, M.D.

NEW-FIFTY-BED-ADDITION

COMPLETE PATHOLOICAL AND ROENTGENOLOGICAL LABORATORIES

TRAINING SCHOOL FOR NURSES
ONLY HIGH SCHOOL GRADUATES ADMITTED

ROSE ZIMMERN VAN VORT, R. N.,
Superintendent.

DAVIS-FISCHER SANATORIUM

25-27 East Linden Avenue

ATLANTA, GEORGIA

Two modern fireproof buildings, capacity of two hundred beds, confined to surgical, gynecological, medical and obsteirical cases. No mental or alcoholic cases admitted. Laboratories are complete for all diagnostic examinations. Training school for nurses.

DR. MOODY'S SANITARIUM

SAN ANTONIO, TEXAS

For Nervous and Mental Diseases, Drug and Alcohol Addictions and Nervous Invalids Needing Rest and Recuperation

Established 1903. Strictly ethical. Location delightful summer and winter. Approved diagnostic and therapeutic methods. Modern clinical laboratory. 7 buildings, each with separate lawns, each featuring a small separate sanitarium, affording wholesome restfulness and recreation, in doors and out doors, tactful nursing and homelike comforts. Bath rooms en suite, 100 rooms: large galleries, modern equipments. 15 acres, 350 shade trees, cement walks, playgrounds. Surrounded by beautiful park, Government Post grounds and Country Club.

T. L. Moody, M.D., Supt and Res. Physican.

J. A. McIntosh, M.D., Res. Physican. C. W. Stevenson, M.D., Res. Physican.

Altitude 1850 Feet Mild Winters Breezy Summers Abundant Sunshine

THE CORNICK SANATORIUM—For Pulmonary Tuberculosis

BOYD CORNICK, M.D., Medical Director. C. R. TREAT, Associate and Supt. SAN ANGELO, TEXAS

An institution for the care and treatment of early stage cases of pulmonary tuberculosis. Patients without reasonable prospects of an arrest of the disease are not received. Applicants from a distance admitted only after preliminary correspondence with their family physician. FOR RATES AND OTHER INFORMATION, ADDRESS THE MEDICAL DIRECTOR.

THE SARAH LEIGH HOSPITAL

NORFOLK, VA.

The Staff combined under Group System in 1919, and the equipment greatly improved with the most up-to-date facilities for thorough Diagnosis, and Surgical, Radium and Medical Treatment. Capacity, eighty-five beds.

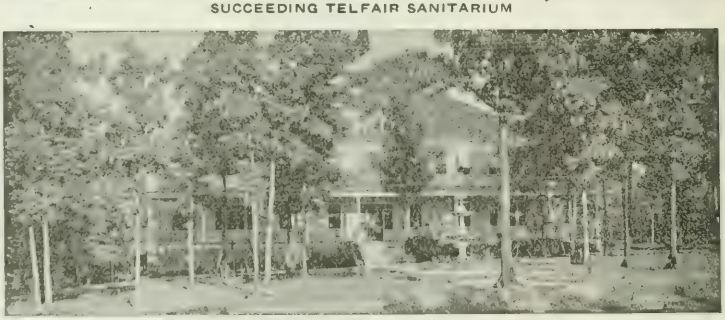
STAFF

Southgate Leigh, M.D., F.A.C.S.
Surgery and Gynecology.
James H. Culpepper, M.D.
Surgery and Orthopedic Surgery.
Stanley H. Graves, M.D., F.A.C.S.
Genito-Urinary and Rectal Diseases.
Frederick C. Rinker, B.A., M.D.
Internal Medicine and Diagnosis.
Harry Harrison, M.D.
Internal Medicine and N-O Anaesthesia.
S. B. Whitlock, M.D.
Roentgenologist.
G. Bentley Byrd, M.D.
Obstetrics.
Daphne Conover, B.A.
Pathologist and Laboratory Technician.
L. L. Odom, R.N.
Superintendent.
S. S. Preston, R.N.
Assistant Superintendent.

TRAINING SCHOOL FOR NURSES

Glenwood Park Sanitarium, Greensboro, North Carolina.

SUCCEEDING TELFAIR SANITARIUM



The Glenwood Park Sanitarium is ideally located in a quiet suburb of Greensboro, having all the advantages of the city, yet sufficiently isolated to enable our patients to enjoy restful quietude and entire freedom from the noise and distraction incident to city life.

CLASS OF PATIENTS—Those who need help to overcome the bondage of habit. Rest from overwork, study or care. Diversions for the depressed and disquiet mind—and such as are suffering from any disease of the nervous system. The treatment consists of the gradual breaking up of injurious habits, and the restoration to normal conditions, by the use of regular and wholesome diet, pure air, sunlight, and exercise, with such other remedies as are calculated to assist nature in the work of restoration.

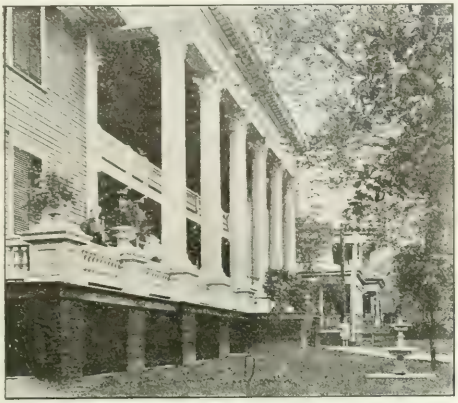
Special attention is given to the use of electricity. Twenty years' experience has proven it invaluable in cases of nervous prostration, incipient paralysis, insomnia, the opium and whiskey habits, and those nervous affections due to uterine or ovarian disorders.

For further particulars and terms, address W. C. ASHWORTH, M.D., Superintendent.

BLACKMAN SANITARIUM

DISORDERS OF NUTRITION AND ELIMINATION

HEART-ARTERY-KIDNEY AFFECTIONS



172 CAPITOL AVENUE
ATLANTA, GEORGIA

Hydro-Electro-Therapeutic, Dietetic, Medical

Two of its features:

Treatment of Diabetes. (Allen Method)

Rest and Fattening Cure.
(5 lbs. per week)

Rates, $35 to $50 per week.
Good Cuisine.

Homelike resort atmosphere.
Laboratory facilities.

Modern Equipment.

For information and reprints address

W. W. BLACKMAN, M. D.

THE WATAUGA SANITARIUM

RIDGETOP, TENNESSEE.

For Tuberculosis in any Form.

STAFF:

Dr. Wm. Litterer
Dr. W. A. Bryan
Dr. O. N. Bryan
Dr. G. C. Savage
Dr. J. M. King
Dr. W. W. Winters
Dr. H. S. Shoulders

19 miles North of Nashvil
Henderson Division
of L. & N. Ry.

Location ideal, elevation 1,000 feet, buildings modern; hot and cold water, gas lights, perfect sewerage and excellent water supply. Tuberculins and vaccines administered in suitable cases. X-Ray Diagnosis. Heliotherapy. Rates very reasonable.

Inquiries appreciated. Illustrated booklet on application.

DR. W. S. RUDE, Medical Director. RIDGETOP, TENN

THE WINYAH SANATORIUM

OPERATED BY THE VON RUCK MEMORIAL SANATORIUM, Inc.

Established 1888. ASHEVILLE, N. C.

Dr. Karl von Ruck, Medical Director

A modern and completely equipped institution for the treatment of tuberculosis. High-class accommodations. Strictly scientific methods. For particulars and rates write to

WM. A. SCHOENHEIT
Business Manager.

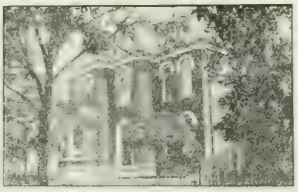
(Please Mention this Journal)

SAINT ALBANS SANATORIUM

RADFORD, VA.

MEDICAL STAFF:
J. C. King, M. D.
John J. Giesen, M. D.

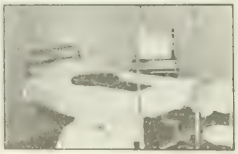
A modern, ethical Institution, fully equipped for the diagnosis, care and treatment of medical, neurological, mild mental and addiction cases. Ideal location, 2000 feet above sea level. Rates reasonable. Railway facilities excellent. Write for full details.



Nashville
Private Maternity Hospital

For the care and protection of unfortunate young women. Adoption of babies arranged. Ethical supervision.

1230 Second Avenue South
NASHVILLE, TENN.



The Thompson Sanatorium

For the treatment and education of tuberculous patients. Seventy-five miles northwest of and twelve hundred feet higher than San Antonio. Mild winters, cool breezy summers. Hospital Building and Hollow Tile Cottages with modern conveniences. Beautiful mountain scenery. Prices moderate. Trained nurses.

SAM E. THOMPSON, M.D.
Superintendent and Medical Director

H. Y. SWAYZE, M.D.
Associate Medical Director

KERRVILLE, TEXAS

The Ella Oliver Refuge

A refined Christian home for the care and protection of unfortunate girls during pregnancy and confinement.

Under the auspices of the Womens and Young Women's Christian Association of this city.

Adoption of babies arranged for when desired

Patients may have house physician or any other ethical physician.

Charges very reasonable.

Strictest privacy is maintained.

For folder and further information, address

ELLA OLIVER REFUGE,
903 Walker Ave.,
Phone—Walnut 639. Memphis, Tenn.

Dr. Brawner's Sanitarium

ATLANTA, GEORGIA

For the treatment of Nervous and Mental Diseases, General Invalidism and Drug Addictions. Separate Department for the Custodial Care of Chronic Cases.

The Sanitarium is located on the Marietta Car Line, 10 miles from the center of the City, near a beautiful suburb, Smyrna, Ga. Grounds comprise 80 acres. Buildings are steam heated, electrically lighted, and many rooms have private baths.

RATES

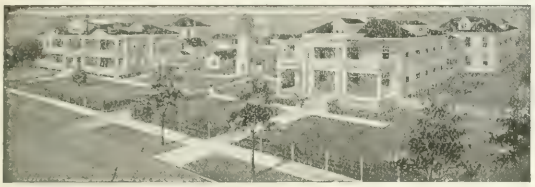
Acute cases $35.00 to $55.00 per week.
Chronic Cases for custodial care $20.00 to $35.00 per week.

Reference: The Medical Profession of Atlanta.

DR. JAS. N. BRAWNER, Medical Director
DR. ALBERT F. BRAWNER, Res. Physician
City Office
702 Grant Bldg. ATLANTA, GA.

ARLINGTON HEIGHTS SANITARIUM

P. O. BOX 978, FORT WORTH, TEXAS



For Nervous Diseases and Selected Cases of Mental Diseases.

(Incorporated under laws of Texas)

WILMER L. ALLISON, M.D.
Resident Physician

BRUCE ALLISON, M.D.
Resident Physician

R. H. NEEDHAM, M.D.
Resident Physician

JAS. D. BOZEMAN, M.D.
Resident Physician

City View Sanitarium

(Established 1907)
JOHN W. STEVENS, M.D.
Physician-in-Charge
Telephone Main 2928
Rural Route No. 1 Nashville, Tennessee

For the Treatment of MENTAL and NERVOUS DISEASES and ADDICTIONS.

New Fifty-Room Department completed January, 1915. Now have two new buildings, one for each sex. A thoroughly modern and fully equipped private hospital, operating under state license. Large, commodious buildings offering accommodations to meet the desires of the most exacting. Situated out of town in a quiet, secluded place. Large, shady grounds. Specially trained nurses. Two resident physicians. Capacity 65. References: Medical Profession of Nashville.

The Buie Clinic and Marlin Sanitarium-Bath House

connecting with

The Arlington Hotel

MARLIN, TEXAS

A thoroughly modern institution for chronic diseases. Capacity of Clinic and Bath recently doubled, installing every modern convenience and improvement. Using Marlin's famous hot mineral waters and all approved methods of diagnosis and treatments. Marlin waters are similar in analysis to those of the leading spas of Europe, coming from a depth of 3100 feet, temperature 147 F. A daily bath capacity of 800. The following departments are maintained: Internal Medicine, Diagnosis, Urology, Syphilology, Pathology, Roentgenology, Dietetics, Electro-therapy, Eye, Ear, Nose and Throat and Hydrotherapy.

N. D. Buie, M.D., Supt. and Diagnosis,
F. H. Shaw, M.D., Asst. Supt. and Gynecology,
Aug. J. Streit, M.D., Eye, Ear, Nose and Throat,
L. M. Smith, M.D., Urology and Syphilology,
S. S. Munger, M.D., Roentgenology,
O. T. Bundy, M.D., Internal Medicine,
H. S. Garrett, M.D., Internal Medicine,
Iva Lee Bouslough, M.D., Pathology,
T. W. Foster, D.D.S.

The Baker Sanatorium

Colonial Lake
Charleston, S. C.

A new and thoroughly equipped hospital for the care of Surgical patients.

ARCHIBALD E. BAKER, M D., F.A.C.S.
Surgeon in Charge

LYNNHURST SANITARIUM

FOR NERVOUS DISEASES AND MILD MENTAL DISORDERS.

Situated in the suburbs of Memphis in a natural park comprising 28 acres of beautiful woodland and ornamental shrubbery. Modern and approved methods in construction and equipment. Sanitary plumbing, low-pressure steam heat, electric light, fire protection and an abundance of pure water. The elegance and comforts of a well appointed home. Rooms single or en suite with private bath. Facilities for giving Hydrotherapy, Electrotherapy, Massage, Physical Culture and Rest Treatment. Experienced nurses and house Physician. An improved treatment for Opium-Morphin Addiction.

S. T. RUCKER, M.D., Director Medical Department.

Memphis, Tenn. Bell Telephone Connections

KENILWORTH SANITARIUM

KENILWORTH, ILLINOIS
(Established 1905)
(C. & N. W. Railway, Six Miles North of Chicago.)

Built and equipped for the treatment of nervous and mental diseases. Approved diagnostic and therapeutics methods.

An adequate night nursing service maintained. Sound proof rooms with forced ventilation. Elegant appointments. Bath rooms en suite, steam heating, electric lighting, electric elevator.

Resident Medical Staff:
Minta P. Kemp, M.D. Sherman Brown, M.D.
Sanger Brown, M.D.
Consultation by appointment
All correspondence should be addressed to
Kenilworth Sanitarium Kenilworth, Ill.

WAUKESHA SPRINGS SANITARIUM

For the Care and Treatment of

NERVOUS DISEASES

Building Absolutely Fireproof

BYRON M. CAPLES, M. D., Supt.

Waukesha, - - - - Wisconsin

HILLCREST MANOR

ASHEVILLE, N. C.

LOUIS E. BISCH, M.D., Ph.D.

(Resident Medical Director)

Sanitarium

Devoted to the Scientific Treatment of Organic and Functional Nervous Diseases.

A thorough, detailed, individual examination and study made of each patient. All the latest methods of psychotherapy employed—including psychoanalysis. Trained, graduate nursing—large, airy, cheerful rooms—the seclusiveness of seventeen acres of wooded hills with lawns, orchards, and vineyard—wholesome food, cooked under supervision of a dietititian—a congenial, restful atmosphere in an up-to-date building—air water, climate and scenery unsurpassed.

Patients are Examined for Admission to Hillcrest Manor
At the City Offices
Suite 206-208 Haywood Building
Asheville, N. C.

(Positively no Insane or Tubercular Persons are Admitted)

The Willows
An ethical seclusion maternity home and hospital for unfortunate young women. Patients accepted any time during gestation. Adoption of babies when arranged for. Prices reasonable Write for 96-page illustrated booklet.
2529-31 MAIN ST.
The Willows
KANSAS CITY MISSOURI

DR. SEALE HARRIS' DIETETIC INFIRMARY

BIRMINGHAM, ALABAMA

"For the Diagnosis and the Dietetic, Medical and Educational Treatment of Diseases of the Stomach and Intestines and of Nutrition."

Convalescent Surgical Patients are accepted. Functional nervous patients for whom diet and health instruction are necessary are particularly desired. No typhoid, tuberculosis or other infectious cases will be accepted. A delightful environment free from the annoyances of a general hospital, on Birmingham's most beautiful boulevard.

For further information address Dr. Seale Harris' Dietetic Infirmary, 2234 Highland Avenue, or Dr. Seale Harris, 804-808 Empire Building, Birmingham, Alabama.

The Tucker Sanatorium, Inc.

Madison and Franklin Streets
RICHMOND, VIRGINIA

This is the Private Sanatorium of Dr. Beverley R. Tucker

The Tucker Sanatorium is for the treatment of nervous diseases. Insane and acute alcoholic cases are not taken. The Sanatorium is large and bright, surrounded by a lawn and shady walks and large verandas. It is situated in the best part of Richmond and is thoroughly and modernly equipped. There are departments for massage, medicinal exercises, hydrotherapy, occupation and electricity. The nurses are especially trained in the care of nervous cases.

THE HENDRICKS - LAWS SANATORIUM, FOR TUBERCULOSIS

El Paso, Texas

CHAS. M. HENDRICKS
J. W. LAWS
Medical Directors
ROY C. YOUNG
Asst. Medical Director

One of the most modern and thoroughly equipped private institutions for the treatment of tuberculosis. High-class accommodations. Fireproof construction. Individual sleeping porches. Excellent cuisine. Altitude 4000 feet. Climate ideal all of the year. For further information, address

M. R. HARVEY
President

The Cincinnati Sanitarium

Inc. 1873

For Mental and Nervous Diseases. A strictly modern hospital fully equipped for the scientific treatment of nervous and mental affections. Situation retired and accessible. For details write for descriptive pamphlet.

F. W. Langdon, M.D.,
Visit. Consultant
Egbert W. Fell, M.D.,
Medical Director
Ottis Like, M.D.,
Associate Medical Director

H. P. COLLINS, Business Manager
Box No. 4, College Hill
CINCINNATI, OHIO

"REST COTTAGE" College Hill, Cincinnati, Ohio

For purely nervous cases, nutritional errors and convalescents.

Completely equipped for hydrotherapy, massages, etc.

Cuisine to meet individual needs.

F. W. Langdon, M.D., Visiting Consultant

Egbert W. Fell, M.D., Medical Director

Ottis Like, M.D., Associate Medical Director

H. P. Collins, Business Manager.

RADIUM AND X-RAY LABORATORY

425-429 Woodward Building

BIRMINGHAM, ALA.

For the treatment of MALIGNANT and BENIGN conditions, in which the use of Radium and ALLIED MEASURES has been definitely established.

Address:

Dr. WALTER A. WEED, Director

425 Woodward Building, Birmingham, Alabama

Shortle's Albuquerque Sanatorium

FOR TUBERCULOSIS

ALBUQUERQUE, - - NEW MEXICO

Altitude 5,100 Feet. Rates Moderate. Climatic Conditions Unsurpassed.

A private sanatorium where the closest personal attention is given each patient. Complete laboratory and X-Ray equipment for diagnostic purposes. Compression of the lung and sun-bath treatment after the methods of Rollier. Steam heat, hot and cold water, electric lights, call bells, local and long distance telephones and private porches for each room. Bungalows if desired. Situated but 1 1-2 miles from Albuquerque, the largest city and best market of New Mexico, permits of excellent meals and service at moderate price. **Write for Booklet B.**

A. G. Shortle, M.D., Medical Director

Pottenger Sanatorium, MONROVIA, CALIFORNIA

For Diseases of the Lungs and Throat

F. M. Pottenger, A.M., M.D., LL.D., Med. Director.

J. E. Pottenger, A.B., M.D., Asst. Med. Director and Chief of Laboratory.

Situated in a beautiful park on the southern slope of the Sierra Madre Mountains. Magnificent valley and mountain views. Elevation 1000 feet. Winters delightful, summers cool and pleasant. Rooms and bungalows with modern conveniences. Thoroughly equipped for the scientific treatment of tuberculosis. Competent staff. Close personal attention. Excellent cuisine. Near Los Angeles and Pasadena.

Los Angeles Office: 1100-1103 Title Insurance Bldg., 5th and Spring Sts.

Address POTTENGER SANATORIUM, Monrovia, Calif., for particulars.

RADIUM THERAPY

in connection with

NEWELL & NEWELL Sanitarium

705-707 Walnut St., Chattanooga, Tenn.

An ample supply of Radium for the treatment of all conditions in which Radium is indicated.

SANITARIUM STAFF

E. T. Newell, M.D.
E. D. Newell, M.D.
G. P. Haymore, M.D.
T. C. Crowell, M.D.
J. Marsh Frere, M.D.

THE MARTIN CLINIC

Dugan-Stuart Bldg.
HOT SPRINGS, ARK.

DR. E. A. PURDUM
Chief of Staff
DR. W. G. KLUGH
DR. W. F. PORTER
DR. P. Z. BROWNE
DR. C. W. JENNINGS
W. J. FORD
Roentgenology
C. W. ABEL
Clinical Pathology

WASHINGTON RADIUM AND X-RAY LABORATORY

1610 20th STREET NORTHWEST

WASHINGTON, D. C.

Hours 8 A. M. to 6 P. M. Phone North 6687-3457

C. AUGUSTUS SIMPSON, M. D.

DERMATOLOGY, X-RAY AND RADIUM THERAPY

JOSEPH B. BOOTHE, M. D.
Roentgenologist
X-Ray Diagnosis

S. A. CARLIN
Bacteriology
Vaccines
Serology

Consulting Surgeons
CHARLES S. WHITE, M. D.
THOMAS E. NEILL, M. D.

Consulting Gynecologists
JOSEPH J. MUNDELL, M. D.
JOSEPH D. RODGERS, M. D.
E. W. TITUS, M. D.

Consulting Pathologist
OSCAR B. HUNTER, M. D.

Consulting Dental Surgeon and Dental Radiographer
ARTHUR B. CRANE, D. D. S.

E. D. SIMPSON
Treasurer

M. C. MULLIN,
Secretary and Manager

Containers for Wassermann, Spinal Fluid, and Blood sent on request. Radium in sufficient quantity to treat any form of malignancy at our disposal. X-Ray Diagnosis. Massive X-Ray Therapy. Fulguration. Kromayer and Alpine Lamps in skin lesions. Basal Metabolism in thyroid lesions.

Particular attention paid to dental radiography. Diagnosis furnished only on request.

The Southern Radium Clinic, Inc.

CUSHACHS BUILDING
NEW ORLEANS, LOUISIANA

STAFF

DR. ROBERT BERNHARD
DR. F. TEMPLE BROWN
DR. P. J. CARTER
DR. ANSEL M. CAINE
DR. PETER GRAFFAGNINO
DR. J. RAYMOND HUME
DR. HENRY LEIDENHEIMER
DR. THOMAS B. SELLERS
DR. PAUL T. TALBOT
DR. H. W. E. WALTHER
DR. ARTHUR LEE WHITMIRE

ADDRESS COMMUNICATIONS TO

DR. CHAS. H. VOSS, Radio-Therapist

DR. TOEPEL'S
INSTITUTE FOR DEFORMED

78 FORREST AVENUE ATLANTA, GA.

Equipped for the Treatment of Underdeveloped and Paralyzed Muscles and for the Conservative Correction of Deformities.

For further information address

THEODORE TOEPEL. DR. MED., DIRECTOR

The Volapathic Institute
CINCINNATI

An ethical sanitarium for the treatment of alcohol and drug addiction patients of the higher type, whose restoration will be of benefit to society. Location in quiet residence section. Our treatment has been most successful.

Circular and rates upon request.

846 Beecher St., P. O. Box 825.

ATLANTA RADIUM AND X-RAY LABORATORY

Doctors' Building, 436 Peachtree Street
ATLANTA, GA.

Radium and X-Ray Therapy

COSBY SWANSON, M. D. Wm. H. HAILEY, M. D.

UNIVERSITY OF GEORGIA
MEDICAL DEPARTMENT
AUGUSTA, GEORGIA.

ENTRANCE REQUIREMENTS: The successful completion of at least two years of work, including English, Physics, Chemistry and Biology in an approved college. This in addition to four years of high school.

INSTRUCTION: The course of instruction occupies four years, beginning the second week in September and ending the first week in June. The first two years are devoted to the fundamental sciences and the third and fourth to practical clinical instruction in medicine and surgery. At the organized medical and surgical charities of the city of Augusta and Richmond county, including the hospitals, are under the entire control of the Board of Trustees of the University. This arrangement affords a large number and variety of patients which are used in the clinical teaching. Especial emphasis is laid upon practical work both in the laboratory and clinical departments.

TUITION: To the residents of the State of Georgia tuition is free, to others the tuition is $150.00.

For further information and catalogue address,

THE MEDICAL DEPARTMENT,
UNIVERSITY OF GEORGIA,
Augusta, Georgia.

HERMAN KNAPP MEMORIAL EYE HOSPITAL
SCHOOL OF OPHTHALMOLOGY

A six months course is open to qualified medical practitioners. The first three months are devoted to all-day instruction in the following subjects:

1. Daily Clinics in Dispensary
2. Refraction
3. Ophthalmological Quiz
4. Muscular Anomalies
5. Ophthalmoscopy
6. External Diseases of the Eye
7. Physiological Optics
8. Operative Surgery
9. Pathology
10. Ophthalmological Neurology
11. Diagnosis

During the second three months practical instruction is given in the Hospital and Clinic. A new course starts October, January, April and July. A vacancy occurs on the House Staff Jan. 1, 1923.

DR. GERALD H. GROUT, Secretary
500 West 57th St., New York City, N. Y.

The New York Skin and Cancer Hospital
SPECIAL POST GRADUATE INSTRUCTION
For Graduates in Medicine
Will be given as follows:

1—Hospital and Dispensary instruction diagnosis and treatment of diseases of the skin.
2—Instruction in syphilis—diagnosis, laboratory work and treatment.
3—Instruction in X-Ray Therapy.
4—Laboratory instruction in the pathology of skin diseases and new growths, including clinical methods for the demonstration of the commoner parasites.
5—Hospital and dispensary instruction in the surgical treatment of cancer.

Apply to Superintendent
301 E. Nineteenth Street, NEW YORK CITY

RADIUM AND X-RAY LABORATORY
in Connection With
DRS. GAMBLE BROS., MONTGOMERY & CO.
Greenville, Miss.

A thoroughly equipped X-Ray Laboratory and an ample supply of Radium for the treatment of all conditions in which Radium is indicated.

Address all communications to

DR. ROBT. C. FINLAY, Director,

Greenville, Miss.

UNIVERSITY OF LOUISVILLE
MEDICAL DEPARTMENT

Eighty-fourth Annual Session begins Sept. 20, 1921. Entrance requirements for the 1921-22 session—two years of College work including Physics, Chemistry, Biology and English, in addition to the fifteen units' work in an accredited, standard high-school.

The two-year premedical course of instruction is given in the Academic Department of the University. A combined B.S., M.D. degree granted after two years of study in College of Arts and Sciences and four years in Medical Department.

Well equipped laboratories under full-time teachers; Clinical work in the New Million-Dollar City Hospital. All-time teachers in Clinical Medicine and Surgery. Co-educational. For further information and catalogue, address the Dean.

HENRY ENOS TULEY, M.D.,
Louisville, Ky.

Tulane University of Louisiana

SCHOOL OF MEDICINE

(Established in 1834)

ADMISSION: All students entering the Freshman Class will be required to present credits for two years of college work, which must include Chemistry (General and Organic), Physics and Biology, with their laboratories, and at least one year in English and one year in a modern foreign language.

COMBINED COURSES: Premedical course of two years is offered in the College of Arts and Sciences, which provides for systematic work leading to the B. S. degree at the end of the second year in the medical course.

School of Pharmacy, School of Dentistry and Graduate School of Medicine also.

Women admitted to all Schools of the

College of Medicine

For bulletins and all other information, address

TULANE COLLEGE OF MEDICINE

1551 Canal St.,

NEW ORLEANS, LOUISIANA

THE JEFFERSON MEDICAL COLLEGE OF PHILADELPHIA

NINETY-EIGHTH ANNUAL SESSION BEGINS SEPT. 25, 1922, AND ENDS JUNE 1, 1923.

FOUNDED 1825. A CHARTERED UNIVERSITY SINCE 1838. One of the oldest and most successful medical schools in America. Graduates number 14,103, over 5,000 of whom are active in medical work in every state, and many foreign countries.

ADMISSION: Not less than two college years leading to a degree in science or art, including specified science and language courses. Preference is given to those who have completed additional work.

FACILITIES: Well equipped laboratories; separate Anatomical Institute; teaching museums; free libraries; unusual and superior clinical opportunities in the Jefferson Hospital, Jefferson Maternity, and Department for Diseases of the Chest, all owned and controlled by the College, together with instruction privileges in six other hospitals.

FACULTY: Eminent medical men of national reputation and unusual teaching ability.

ABUNDANT OPPORTUNITIES for graduates to enter hospital service and other medical fields.

APPLICATIONS should be made early.

ROSS V. PATTERSON, M.D., Dean.

The Graduate School of Medicine

of the

University of Alabama

Announces special courses

In Medical and Surgical Diagnosis

For further information address the Dean

JAMES S. McLESTER, M. D. Dean
930 South 20th Street
BIRMINGHAM

UNIVERSITY OF MARYLAND, SCHOOL OF MEDICINE
AND
COLLEGE OF PHYSICIANS AND SURGEONS

Requirements for Admission—Two years of college work, including modern languages Chemistry, Biology and Physics, in addition to an approved four year high school course.

Facilities for Teaching—Abundant laboratory space and equipment. Two large general hospitals absolutely controlled by the faculty and several hospitals devoted to specialties, in which clinical teaching is done.

The next regular session will open October 1, 1921.

For catalogue apply to J. M. H. Rowland, M.D., Dean, N. E. Cor. Lombard and Greene Sts. Baltimore, Md.

LOYOLA POST-GRADUATE SCHOOL OF MEDICINE
New Orleans, La.

Combining New Orleans Post-Graduate School of Medicine.
Louisiana Post-Graduate School of Medicine.

Offers courses in all branches of medicine and surgery.
Special facilities for courses in the Eye, and the Ear, Nose and Throat.
Faculty numbering over eighty. Abundant cadaveric material.
Unlimited clinical material in all the hospitals of New Orleans, the medical metropolis of the South.
Students admitted to all courses throughout the year.

JAMES M. BATCHELOR, M.D., President. JOSEPH A. DANNA, M.D., Secretary.
Address all Communications to the Secretary, 1533 Tulane Ave., New Orleans, La.

EMORY UNIVERSITY

School of Medicine

(Atlanta Medical College)

Sixty-Eighth Annual Session Begins Sept. 27, 1922.

ADMISSION: Completion of four-year course at an accredited high school, which requires not less than 15 units for graduation, and in addition, two years of college credits in Physics, Biology, Inorganic Chemistry, and German or French. The pre-medical course will be given in the College of Liberal Arts at Emory University, Georgia. Admission to the pre-medical course may be obtained by presenting credentials of 15 units of high school work.

COMBINATION: A student who has the requisite credits of School of Liberal Arts for two years, will be admitted to the Freshman Class in the School of Medicine of this institution, and upon completion of his sophomore year in the School of Medicine, can obtain his degree of Bachelor of Science from Emory University, gaining his M. D. degree at the close of his senior year in the Medical School.

INSTRUCTION: Thorough laboratory training and systematic clinical teaching are special features of this institution. The faculty is composed of 111 professors and instructors, fourteen of whom are full-time salaried men.

EQUIPMENT: Five large new modern buildings devoted exclusively to the teaching of medicine, well equipped laboratories, and reference library.

HOSPITAL FACILITIES: The negro division of the Grady (municipal) Hospital, with a capacity of 240 beds, is in charge of the faculty of the School of Medicine for the entire year. On September 1, 1922, the new Wesley Memorial Hospital on the University Campus will be ready for the reception of patients. This hospital, which will be entirely under the control of the faculty of the medical school, represents an outlay of approximately $1,500,000 and will accommodate two hundred ward and teaching patients and one hundred and three private patients, making a total of about three hundred patients. In the J. J. Gray out-patient building, which was completed several years ago at a cost of $75,000, 4000 patients are treated monthly, affording excellent facilities for clinical instruction.

RATING: This college has a Class A rating, and is a member of the Association of American Medical Colleges.

Catalogue giving full information, also entrance blanks, will be sent by applying to WM. S. ELKIN, M. D., Dean, Atlanta, Ga.

University of Virginia

Department of Medicine

ENTRANCE REQUIREMENTS: Two years of college work (including courses in physics, chemistry, biology, English and an ancient or modern foreign language) after the completion of a four-year high school course or its equivalent.

THOROUGHLY EQUIPPED LABORATORIES in the fundamental medical sciences. All instructors in these sciences are full time men.

CLINICAL INSTRUCTION in the University of Virginia Hospital, which is owned and operated by the University as a teaching hospital. Upwards of 2,500 ward patients annually. Instruction of medical students the primary interest of the chief professors of medicine and surgery, the majority of whom limit their practice to the wards of the University Hospital. Students also receive clinical training in the Blue Ridge Tuberculosis Sanatorium of the State Board of Health of Virginia.

COMBINED DEGREES IN ARTS AND MEDICINE to students who present credit for their pre-medical work from the University of Virginia.

EFFICIENCY AND THOROUGHNESS of instruction indicated by very high standing of its graduates before State Boards of Medical Examiners and by the exceptional character of hospital interne appointments secured after graduation.

For catalogues and other information, address

DEPARTMENT OF MEDICINE

UNIVERSITY, VIRGINIA

AS A GENERAL ANTISEPTIC

Though introduced as a genito-urinary germicide, its field of usefulness has rapidly extended until it is now in many cases even replacing Tincture of Iodine.

MERCUROCHROME—220 SOLUBLE

is being employed with marked success in treating septic conditions of the EYE, EAR, NOSE and THROAT, to disinfect WOUNDS, to produce aseptic fields for SURGICAL PRACTICE and as an antiseptic for certain SKIN DISEASES and INFECTIONS.

The Stain

fixes the germicide in its field,
prevents the overlooking of any septic surfaces,
provides for more than a superficial penetration.

H. W. & D.—SPECIFY—H. W. & D.

HYNSON, WESTCOTT & DUNNING

BALTIMORE.

Armour's LABORATORY PRODUCTS

"Why Take a Chance, When You May Be Sure, in Treating Thyroid Insufficiency?"

The most recent method of treating Thyroid Insufficiency is to administer two-grain doses of Standardized Thyroids t.i.d. until the usual symptoms of hyperthyroidism appear; then give small doses, [1/10 or 1/4 grain] to maintain balance.

The Armour Thyroid Preparations are stable and dependable. They are standardized for iodine content and run uniformly.

The Armour Thyroid Products represent all the therapeutic properties of normal Thyroid glands unimpaired, as all desiccating is done in vacuum ovens at a temperature never above 105 degrees F.

We offer Thyroid Powder and 1/10, 1/4, 1/2, 1 and 2 grain compressed tablets.

Also

Suprarenalin Solution	**1:1000**
Suprarenalin Ointment	**1:1000**
Pituitary Liquid	**½ c. c. "O&S"**
Pituitary Liquid	**1 c. c. "S&O"**

Armour's Sterile Catgut Ligatures are made from selected lambs gut — plain, chromic and iodized; 000 to number 4

Literature to Physicians on Request

ARMOUR AND COMPANY

CHICAGO

SOUTHERN MEDICAL JOURNAL

JOURNAL OF THE SOUTHERN MEDICAL ASSOCIATION

PUBLISHED MONTHLY BY THE SOUTHERN MEDICAL ASSOCIATION AT BIRMINGHAM, ALA.

Volume XV JULY 1922 Number 7

MEDICINE

INTERNAL DISEASES, PEDIATRICS, NEUROLOGY, DIAGNOSTIC METHODS, ETC.

THE DIAGNOSIS OF PULMONARY TUBERCULOSIS*

BY LOUIS HAMMAN, M.D.,
Baltimore, Md.

During the past twenty years the medical profession has shown a deep interest in the diagnosis of pulmonary tuberculosis and this interest is not yet exhausted. Scarcely a meeting of the Southern Medical Association passes without reference to the subject, and often a whole session is given over to a discussion of it. There must be some important practical issue at stake to stimulate such a lively interest. The older members of this Association will remember how it was aroused. In the latter part of the last century a few enthusiastic physicians began to attract attention to the treatment of pulmonary tuberculosis. They demonstrated that what at that time was a hopeless situation might, under suitable conditions, be converted into a reasonable prospect of recovery, and that the prospect of recovery varied with the extent and acuteness of the disease. Having before us daily examples of the results of treatment in pulmonary tuberculosis, it is difficult to appreciate what an astonishing revelation these early demonstrations were and how they fired the imagination.

Largely to this influence we trace the modern crusade against tuberculosis. When this crusade was started, about twenty years ago, the slogan of the campaign was "tuberculosis is a curable and preventable disease" and emphasis was put chiefly upon its curability. It was assumed that every case of pulmonary tuberculosis has an early stage; that this early stage can be diagnosed by the skillful; that early diagnosis insures recovery; and, therefore, that the solution of the tuberculosis problem depends in large measure upon the diagnostic skill of the medical profession. Physicians were preached to in and out of season and were exhorted to acquire the skill that would soon yield such a satisfactory reward. There has been no end of publicity and the problem has received all of the consideration that might reasonably have been anticipated, and yet early cases of pulmonary tuberculosis are nearly as rare today as they were fifteen years ago. Search the records of any tuberculosis sanatorium and you will find among the genuinely tuberculous but a small number of early cases. Why is it that in spite of all of our vigilance and interest the early stage of pulmonary tuberculosis so successfully eludes us? Do patients fail to present themselves for examination before the disease is far advanced? Is the profession in spite of its interest still incompetent in pulmonary diagnosis? Or is the difficulty due to insurmountable obstacles offered by the natural course of the disease?

It cannot be questioned that patients often delay seeking medical advice for symptoms that at first seem trivial and

*Read in a joint session of Section on Medicine and Section on Radiology, Southern Medical Association, Fifteenth Annual Meeting, Hot Springs, Ark., Nov. 14-17, 1921.

only later receive the attention due them when tenacity or gradually increasing severity cause alarm. However, it appears to me that this delay can explain only an insignificant part of the failure to diagnose early pulmonary tuberculosis. In connection with all large clinics there are now organized agencies to seek out and encourage those associating with the tuberculous to come for examination. In spite of this assistance the number of early cases remains small. The laxity of physicians is perhaps a more important cause. Although constantly warned of the difficulties of diagnosis and the innocent appearance of the early symptoms of tuberculous disease, too often still a ready prescription and jovial reassurance replace a careful investigation. You are familiar with the reported statistics showing the lapse of time between the date when patients first present themselves to the physician and the date when they first receive serious advice about their disease. While skillful pulmonary examinations can be made by relatively few physicians, still a careful study of all the features presented by a patient will usually permit a definite conclusion to be drawn about the presence of tuberculosis, and I am convinced that the frequent, though unwarranted, delay in diagnosis is more commonly due to indolence and neglect than to the real difficulties of diagnosis.

The indifference of patients, the negligence of physicians and the difficulty of reaching expertness in pulmonary examinations all contribute to make the number of early diagnoses small. However, there is something in the nature of the infection that is of far greater importance than these factors, else how can you explain the relatively small number of early cases of pulmonary tuberculosis discovered in special clinics. There evidence of the disease is especially sought after, the physicians are all skillful in diagnosis and a large number of suspected patients are examined. Therefore there must be some trait in the progress of tuberculous infection that renders the detection of early stages difficult and in many instances impossible.

I ask you to recall to mind the friends and relatives who have developed tuberculosis. Do you remember them as having slid gradually and almost imperceptibly into a decline or did they pass more abruptly from health to disease? I think you will say that to many the transition came suddenly and unexpectedly. Tuberculosis does not always begin as a small lesion that slowly spreads, giving at first only indefinite evidence of its presence and gradually as the disease advances becoming more and more apparent. More often it begins abruptly with obvious symptoms and then progresses by leaps and bounds. A man in full health suddenly has an hemoptysis. His lungs at the time may show little or no change, but fever sets in and is protracted and at the end of ten days or two weeks examination reveals that a whole lobe or a whole lung is riddled with tubercles. Another equally well suddenly develops cough and fever. Apparently it is an ordinary respiratory infection, but the symptoms persist and finally rales appear spread over a lobe or wider area. Where is the early stage in such examples and how is it to be diagnosed?

Although tuberculous disease often begins in this acute way, still, preceding the onset of such severe symptoms there must have been a quiescent focus of infection from which the disease spread. Perhaps if we paid more attention to the discovery of latent infection we might, by the use of appropriate measures, ward off these disastrous clinical manifestations.

It is needless for me to remind you of the prevalence of tuberculous infection. Fortunately in most of us the infection passes unnoticed. It acquires clinical importance only when it advances sufficiently to produce disquieting symptoms. The symptoms of advance are often ill-defined and frequently are misinterpreted. As our knowledge of the infection increases we will learn to recognize these symptoms more and more readily. I think it is helpful to view the course of tuberculous infection graphically. Let us assume a base line which, when passed, indicates infection. Above this a second line which, when passed, indicates the presence of recognizable symptoms of the infection or tuberculous disease. What happens between the two lines is carried

on in obscurity. We can sound this depth only with the aid of tuberculin, which tells us whether or not infection exists. But what interesting graphic charts our fancy can construct from the facts we observe when the infection projects into the clinical field! As I have said, in most of us the play of infection progresses beyond our view, but often circumstances carry it almost but not quite into vision. In some a favoring concurrence of events thrusts it boldly and prominently above the line of clinical demarcation to remain there or to sink again into slumbering obscurity. In others it comes into view gradually and hesitatingly, hovering, as it were, about the threshold to disappear again or to advance slowly or swiftly but with fatal progress. In still others it appears and disappears at intervals, finally receding to appear no more or coming again more boldly and permanently into the light. As our knowledge increases we shall be able to look a little deeper into the darkness and interpret with confidence what now we can only surmise. Our diagnostic problem at present is to detect the slightest rise above the line of clinical visibility, and to recognize the emergence promptly requires all the vigilance and wit we can command.

Therefore the diagnosis of tuberculosis consists in a fine distinction between infection and disease. This distinction may in a way be artificial, but for practical purposes it is essential that it be drawn. In all other infectious diseases infection and disease are synonymous terms, and when the presence of infection is established the disease is diagnosed. Perhaps it is not sufficiently appreciated that our methods of discovering tuberculous infection are just as accurate and reliable as our methods of discovering any other infection. However, in tuberculosis this determination is of little aid in diagnosis for the problem of diagnosis is to distinguish when infection passes into clinical manifestation or disease.

Thus far I have emphasized the distinction between tuberculous infection and tuberculous disease and have pointed out that the progress of tuberculous infection precludes the possibility of making an early diagnosis in all cases. These fundamental facts must be duly appreciated before there can be an intelligent discussion of the value of methods in diagnosis. Since this is a mingled gathering of internists and roentgenologists, I think I am expected to speak chiefly of the application of roentgenology to the diagnosis of pulmonary tuberculosis.

The internist, to give roentgenology its proper value, must view it from a general standpoint as a part of the whole structure of pulmonary diagnosis. The roentgenologist must of necessity view it from a more restricted standpoint as a very special technical procedure from which he wishes to wring the last drop of profitable evidence. The internist, therefore, is likely to be conservative and critical, the roentgenologist enthusiastic and venturesome. Let us be thankful for the difference; for the restless, seeking spirit of the roentgenologist is the spirit of progress and invention and the less romantic stolid spirit of the internist is the spirit of practical application. Judiciously mingled, they will finally draw all the sane value that can be gotten from the x-ray in diagnosis.

The x-ray, since it tells us only of lung density, is ancillary to the physical examination by means of which we attempt to draw a picture of the physical condition of the lungs. I shall, therefore, begin the consideration of the clinical methods employed in diagnosing pulmonary tuberculosis by a comparison of the aims and results of these two methods of exploration. In speaking of the physical signs of pulmonary disease, I am confronted by a serious difficulty, namely, the varying skill in eliciting and interpreting the evidence obtained by percussion and auscultation. Stimulated by the desire to make earlier and earlier diagnoses, a group of physicians have by application and practice developed a remarkable finesse in percussion and auscultation. The busy practitioner, on the other hand, has neither the time nor the incentive to rival such special skill, and changes that appear gross to the expert are often to him a source of difficulty and uncertainty. Therefore, if I speak of slight changes on percussion and auscultation very different things may be under-

stood. Partially to explain away this difficulty I may say that my remarks will refer to at least reasonably skillful examinations.

If you examine with care the chests of a large number of patients you will be impressed by the frequency with which abnormalities are detected at the apices. Of course, due allowance must be made for the normal differences between the two sides. These abnormalities are detected chiefly at the apices because changes are more common there than elsewhere and because the apices are peculiarly accessible to percussion and auscultation. These changes are usually discovered by slight retraction, slight changes in the percussion note and changes in the respiratory sounds. In many of these patients careful questioning fails to reveal any symptoms that might mark in the past the date when these signs of infection were acquired. In some a history of cough and constitutional symptoms or of hemoptysis places their beginning. We assume that these changes are generally, perhaps even invariably, tuberculous in origin because the evidence of autopsy proves many of them to have a characteristic structure and because tuberculosis is commonly an apical disease. Upon the location of the lesion we place great emphasis because there is nothing characteristic about the physical signs themselves. A non-tuberculous lesion may give identical signs; and manifestations which we interpret as evidence of tuberculosis if located at an apex, and not tuberculosis if located over one of the lower lobes.

Let us allow, then, as I think we safely may, that these slight apical changes are due almost entirely to tuberculosis; what is their significance clinically? It would be futile to contend that they indicate tuberculous disease, for most persons who harbor them are in excellent health, have never had an illness that might be interpreted as tuberculosis and subsequently remain in good health although the pulmonary abnormality persists. Here we come upon the distinction between tuberculous infection and tuberculous disease, a distinction I predicted we should have seriously to reckon with. These slight apical abnormalities are essentially the marks of infection. Whether or not they indicate also the location of tuberculous disease must be decided upon evidence other than that furnished by percussion and auscultation.

In speaking of the detection of slight apical abnormalities I have referred to changes in the percussion note and in the character of the breath sounds. I purposely omitted mention of rales because they deserve special consideration. It is the discovery of rales that gives to the physical examination its distinctive value in diagnosis. By rales I mean definite moist sounds located at an apex often heard only after cough, and I specifically do not mean the various clicks and adventitious sounds that so often puzzle the adept and mislead the novice. When definite moist rales are heard at an apex in addition to slight changes in percussion and in the character of the breath sounds, under circumstances that lead to a suspicion of the presence of tuberculosis, the diagnosis is practically assured. Indeed, there is no other single symptom so distinctive of pulmonary tuberculosis, excepting only the presence of tubercle bacilli in the sputum.

In what way does the x-ray amplify and improve upon the physical examination? In what way does it fall short of it? One of the great advantages of the x-ray is that with satisfactory technical skill an accurate and permanent picture of pulmonary density is produced. Although there may be difference of opinion in the interpretation of the shadows, the precision and truthfulness of the record cannot be questioned. There can be no discussion about the presence or absence of the shadows as there frequently is about the presence or absence of rales or dullness. It is not necessary to commit refined impressions to clumsy words. As an accurate and permanent record of the condition of the lungs at a certain moment it is immeasurably superior to a record of the physical examination.

Another advantage of the x-ray over the physical examination is that it reveals pulmonary changes in far greater detail. You may examine the lungs ever so carefully and find nothing abnormal, but the

x-ray will often disclose surprising changes. If you discover slight abnormalities, the x-ray will show more extensive lesions. I have remarked upon the frequency with which slight pulmonary changes are discovered by physical examination. The x-ray will find them with almost double frequency. Indeed, I have never seen a plate of normal lungs from an adult. Our idea of the normal is a composite picture of many almost normal plates.

I have said that the great shortcoming of physical diagnosis is the difficulty of distinguishing between active and inactive lesions; in other words, between tuberculous disease and the marks of tuberculous infection. The same shortcoming adheres to x-ray diagnosis. We must admit that the shadows are there and are willing to admit that the shadows are evidence of tuberculous infection, but can we distinguish the shadows of inactive negligible lesions from the shadows cast by active foci of disease? When the x-ray plate shows pulmonary changes the clinician wishes to ask two questions: (1) Are these changes due to tuberculosis? (2) If they are due to tuberculosis, is the disease active or inactive.

From the physical examination we are often able confidently to deduce that a patient has pulmonary tuberculosis without reference to the rest of the clinical picture. This deduction depends upon the character of the lesion and upon its location. Likewise, there are x-ray plates that present such a characteristic picture that a diagnosis of tuberculosis can be made without hesitation. Usually such cases present little difficulty in diagnosis by ordinary clinical measures. The x-ray merely adds corroborative evidence. It has been my experience, judging from the interpretations of skilled roentgenologists, that the shadows cast by tuberculous lesions are not in themselves characteristic, but that the association of certain shadows, and especially their location, leads to the diagnosis of pulmonary tuberculosis. Lesions that are called tuberculous when they are located at an apex are called non-tuberculous when they are located in a lower lobe. In those rare instances in which tuberculosis is situated in a lower lobe without apical involvement, an error in diagnosis is nearly always made by the roentgenologist. Not infrequently pneumonia, malignant tumors either secondary or primary, pneumonoconiosis or infarcts are erroneously interpreted. In a word, the roentgenologist proceeds just as the clinician does in interpreting physical signs. There are no signs peculiar to tuberculosis, but certain combinations of signs are so highly suggestive that they almost assure the diagnosis.

If the roentgenologist makes frequent errors in the diagnosis of the tuberculous nature of lung shadows the errors are still more frequent when he attempts to decide definitely whether or not the lesions he discovers are due to active or inactive tuberculosis. Here again I should say the situation is much as it is with the interpretation of physical signs. There are certain combinations which unquestionably bespeak active advancing disease, but in many instances it is impossible to deduce from the physical signs alone or from the x-ray alone whether or not the lesion is active. I pretend to no expertness in the reading of x-ray plates and these deductions are not drawn from my own interpretations, but from the experience of my daily association with competent roentgenologists.

There is only one feature of the physical examination that gives it an advantage over the x-ray, namely, the detection of rales. I have already referred to the prominent position deservedly accorded apical rales in the diagnosis of tuberculous disease. Often the presence of rales will decide a diagnosis when the x-ray alone might leave it in doubt.

I do not wish you to infer that I am hypercritical of the pretensions or the value of the x-ray. Lest you might gather this impression I wish to emphasize that I regard the x-ray as indispensable to accurate pulmonary diagnosis. I should never be willing to assure a patient that he did not have tuberculosis without an x-ray examination. Again and again when I have been unable to discover any definite pulmonary lesion by a painstaking physical examination the x-ray has revealed obvious and even extensive

changes, and on occasions when I have been led to give preliminary reassurance the x-ray has often forced an embarrassing retraction. But I do wish to say that there is no one sovereign and dependable means to diagnose pulmonary tuberculosis and no physician may profitably rely solely upon the x-ray and neglect the other means at his command. Not a month passes but I am called upon once or oftener to review diagnoses based solely upon x-ray findings. In many instances a full consideration of all the data makes the diagnosis untenable. There is a tendency in many quarters for the roentgenologist to draw unwarranted conclusions from x-ray plates of the chest and for the physician to accept these conclusions with naive confidence. I do not blame the roentgenologist so much as I blame the physician. Physicians confronted by a doubtful diagnosis appeal to the x-ray as the final arbiter. They do not want descriptions of shadows. They want a diagnosis and the roentgenologist, yielding to this demand, draws conclusions which are too literally accepted. To give the x-ray the elevated and dignified position in diagnosis that it richly deserves, the physician and roentgenologist must work in close cooperation. The physician should see the plates and talk over the clinical features with the roentgenologist, and together they should discuss the relation of the x-ray findings to the whole clinical picture. In this way the x-ray will soon be given its full value in diagnosis and roentgenologists will be spared the unjust criticism of hasty and extravagant conclusions.

I have spoken at such length about the x-ray in diagnosis that I may only hurriedly touch upon other methods. However, I would not have you feel that these other methods deserve consideration only in proportion to the time allotted them. Throughout my remarks I have referred again and again to the importance of distinguishing between tuberculous infection and tuberculous disease, between active and inactive lesions. In drawing this distinction what can be more helpful than an analysis of the symptoms produced by activity of the pulmonary lesion. Every one who speaks about the diagnosis of pulmonary tuberculosis emphasizes the importance of a careful consideration of the patient's history and yet I think its real value has not fully impressed the practicing physician. It is true there are no symptoms peculiar to tuberculosis, but there are certain groups of symptoms that are highly suggestive and there are a few that are conspicuously characteristic. I may mention particularly hemoptysis and pleurisy. Statistics teach us that in nearly 10 per cent of the patients with pulmonary tuberculosis hemoptysis is the initial symptom, and hemoptysis that cannot be explained by some gross pulmonary or cardiac lesion is always due to tuberculosis. Here is a specific bit of evidence, for instance, which is often neglected. Unfortunately we continue to see many patients whose alarm at an early hemoptysis was quieted by the assurance that the bleeding came from a blood vessel in the pharynx. Pleurisy with effusion and most dry pleurisies are tuberculous, and statistics again teach us that nearly 50 per cent of the patients who have pleurisy with effusion develop outspoken pulmonary tuberculosis within five years. Yet what little account is put upon this information in diagnosis. I need further mention only the constant neglect of the thermometer and the scales. As I have previously said, the refinements of physical diagnosis are beyond the skill of the average practicing physician, but the observation of symptoms may be practiced by all. This is a field that will richly reward cultivation and physicians should be warned not to allow a suspicion raised by the patient's symptoms to be quietly removed by a so-called negative examination.

There is only one indisputable evidence of pulmonary tuberculosis, namely, the presence of tubercle bacilli in the sputum. I realize that this statement is not absolutely true, but it is a safe guide to practice. Occasionally a tuberculous gland will discharge tubercle bacilli into a bronchus. These may be then quickly expectorated and the gland may heal without pulmonary infections taking place. But the very rare error of mistaking such an occurrence for evidence of pulmonary tuberculosis can have no serious conse-

quence. I have the impression that the sputum is no longer so thoroughly examined as it was formerly when it held a more conspicuous place in diagnosis. At least I not infrequently see patients with cough and sputum who have been under the care of a physician for a month or longer whose sputum has not been examined. While the failure to find tubercle bacilli is no evidence against the presence of pulmonary tuberculosis, their importance when found rewards every effort. Not infrequently tubercle bacilli are discovered when they are least anticipated and they assure a diagnosis which otherwise could not have been made.

Finally, I wish to add a word about tuberculin. Twenty years ago it was lauded as the decisive and unfailing arbiter of all doubtful diagnosis. Today it has passed into almost utter neglect. The enthusiastic praise of tuberculin was unwarranted and extravagant, but its present-day neglect is hardly less reproachable. In many instances it has a value in diagnosis that cannot be equalled by any other method of investigation. Tuberculin is a specific indicator of infection and with few well recognized exceptions when a patient fails to react to tuberculin we can confidently say, no matter what symptoms may be present, that he has not tuberculosis. This may often be an invaluable criterion. A patient has suspicious symptoms and the physical examination, the x-ray and the sputum examinations still leave us in doubt. The tuberculin test, however, is negative and all our suspicion is finally dissipated. You may justly remark that so many healthy adults harbor unimportant tuberculous infections that most of them will react whether they have or have not tuberculous disease. That is true, and we can put no value upon a positive tuberculin test, but at least 20 per cent of adults fail to react to tuberculin, and it must often happen that some of this 2 per cent will have symptoms strongly suggestive of tuberculous disease, although really due to some other cause. As a matter of practical experience this does often happen and tuberculin then gives a diagnostic confidence that no other method can supply. During the past winter I chanced to see two patients, one within a few days of the other. They both gave similar histories, a fairly acute onset of the illness characterized by cough, sputum, loss of weight and strength and a little fever. Both showed a small area of consolidation in an upper lobe. The diagnosis lay between a patch of unresolved pneumonia and tuberculosis. One reacted to the intracutaneous tuberculin test. The other showed no sensitiveness to tuberculin even when a one to one hundred dilution was injected into the skin. It was my opinion that neither was tuberculous, but the one I felt confident to dismiss without concern, the other I felt should be under careful supervision. The patient who failed to react to tuberculin made a prompt and lasting recovery; the other patient failed to improve and a few months later tubercle bacilli appeared in the sputum. Shall we disregard a method capable of drawing such fine distinctions?

In concluding, I wish to summarize the impressions I should like you to carry away from my remarks. The results of treatment in pulmonary tuberculosis vary directly with the earliness of diagnosis. This imposes upon the physician the duty to be ever alert to the early manifestations of the disease. Unfortunately the natural progress of the infection makes it impossible for him to detect all instances of the disease at an early stage, for many pass at a stroke from health to an advanced stage. In those instances beginning in a more gradual fashion accurate diagnosis requires all the means of investigation that the physician can summon to his aid. Not the history alone, nor the physical examination alone, nor the x-ray alone, nor the sputum alone, nor tuberculin alone, can solve the problem. He who uses one of these methods to the exclusion of the others is sure to come to grief. Indeed, with all of them at hand final judgment is frequently difficult and sometimes impossible.

The great obstacle in the way of satisfactory early diagnosis is the prevalence of tuberculous infection. We have as yet no way to distinguish in the large group of infected those about to develop manifest tuberculous disease. We must look to the future in the hope that we shall gradually learn something of the concatenation of circumstances that lights a latent focus into active disease.

THE TEACHING OF INFANT FEEDING*

By W. McKim Marriott, M.D.,
Washington University School of Medicine,
St. Louis, Mo.

The artificial feeding of infants is difficult to practice if one is to judge from the relatively high mortality of infants deprived of their mother's milk. If difficult to practice it is much more difficult to teach. We are all familiar with the type of "baby doctor" who from long experience has learned how to bring a fair number of his patients through the perilous period of infancy. He astonishes his students by selecting a feeding formula which seems exactly to suit the case. But let the student ask just why such a feeding was selected and he will probably be told that a number of infants who were in just such condition were treated exactly that way and did well. After seeing a few more infants, each of whom is treated in a different manner, and who recall cases in the long experience of the professor, the student is led to conclude that if he lives long enough and has a large enough practice to have included in his experience all types of infants, he, too, may be able to feed some of them correctly. It is obvious that no one can teach him such a purely empiric art.

The teacher of the type described is as a blind man in a forest, every tree of which is from long experience familiar to him. He finds his way almost without stumbling, but let him attempt to teach another to follow him and a series of catastrophies will be the result.

The blind empiricism of the past is now giving way to the light of science. There are still those who have walked in darkness so long that they are dazzled by the light and prefer to close their eyes and grope on in the paths of empiricism. An empiric art cannot be taught, a science can and, fortunately, infant feeding is gradually becoming more of a science. Prof. Graham Lusk selected a happy title for his book, "The *Science* of Nutrition." If the nutrition of adults and of hogs is a science, the nutrition of infants is no less of a science.

In the search for a science of infant nutrition we must not stumble into the pitfalls of pseudo-science, that form of "near science" which, being only in part true, has all of its value neutralized by the inexact portion. An excellent example of such pseudo-science is the so-called percentage method of infant feeding as often carried out in practice. This method has a considerable basis of scientific truth to commend it, but is fallacious in that it assumes that digestion is greatly influenced by small differences in the amount of water which is taken along with the fat, protein and carbohydrate. Furthermore, the assumption is made that there is such a thing as a specific inability to digest such a substance as protein or fat or carbohydrate if it happens to be fed in a mixture in which it makes up more than, say, 3 per cent or 4 per cent or 7 per cent or whatever one's fancy dictates, while at the same time digestion of other food elements whose percentages of the total are less are assumed to be well digested. It is further assumed that the examination of the stools allows one to determine what was the cause of the diarrhea or constipation or what not. Such conclusions except in the case of such relatively rare conditions as "coeliac disease" are entirely without a clinical or experimental basis.

But enough of percentage feeding, a method which may be successfully used by a master of the subject with a head for mathematics and a milk laboratory around the corner; a method which is unteachable and impracticable for the average general practitioner. Let us return to the practical and consider the few fundamental principles that furnish a basis for the practice and teaching of infant feeding. The subject is not finished. Our knowledge increases daily, but I believe that certain fundamental facts are fairly well established.

In order to gain an understanding of infant nutrition it is well to start with the normal infant as a basis and then consider such variations from the normal as

*Read in Section on Pediatrics, Southern Medical Association, Fifteenth Annual Meeting, Hot Springs, Ark., Nov. 14-17, 1921.

may occur. By a "normal" infant we mean one weighing within 20 per cent of the average weight for the age, and with no disease or digestive disturbances. Such an infant may be successfully fed in a number of ways so long as certain fundamental conditions are fulfilled. The food must:

(1) Be sufficient to cover the caloric demands.

(2) Supply at least a certain minimal amount of protein, carbohydrate, mineral salts, water and vitamins.

(3) Be capable of digestion.

(4) Be free from bacterial contamination.

To meet the caloric demands there must be fed a food with a total fuel value of about forty-five calories per pound of body weight per day. Cows' milk will naturally form the basis of the diet, and if as much as one-tenth of the body weight, or one and one-half ounces per pound, of milk is given per day to an infant, the protein, mineral salt and vitamin requirement will be met, with the possible exception of the anti-scorbutic vitamin which may be supplied by a very small amount of orange juice or tomato juice.

Boiling of the milk will eliminate the danger of bacterial contamination and at the same time render it more digestible. For these reasons boiling of the milk should be routine for the feeding of any infant, even though the milk be "certified."

If boiled undiluted cows' milk were fed to infants in sufficient amount to cover the caloric and water requirements, as much as two and one-half ounces per pound would be necessary, and even then the sugar would be somewhat below the optimum requirement, at least for younger children. Some infants can take this amount of milk per day, but the majority cannot. This, I believe from experimental evidence, is largely due to the fact that cows' milk contains a considerable amount of "buffer substance," at least three times as much as breast milk. This substance neutralizes the acid of the gastric juice so that the stomach contents do not become so acid as in the case of breast milk. Hence the stomach empties more slowly, the bactericidal action of the gastric juices is lost, and there is lacking the stimulus to bile and pancreatic secretion. Older infants can better care for cows' milk as the gastric secretion improves. We must then usually content ourselves with feeding about one and one-half ounces to the pound of body weight and make up the calories in some other way. This may be done by adding either fat or sugar. Practical experience has shown that the addition of fat in the form of cream or top milk is a somewhat dangerous procedure. A safer method of adding fat is in the form of olive oil or perhaps as a "butter flour" mixture (Czerny-Kleinschmidt).

The addition of carbohydrate is, for practical purposes, the more desirable method of adding additional food to the diet. Sugar or starch or both may be added. There is a theoretical reason for selecting milk sugar, as it is the natural sugar of the milk, and a commercial reason for the use of such sugars as the various dextrin and maltose preparations on the market. I know of no good reasons so far as the baby is concerned. Cane sugar can replace lactose and commercial corn syrup ("Karo," etc.) can replace the expensive malt preparations. More dextrin or starch can be fed an infant without producing diarrhea than can cane sugar or lactose. Hence the advantage of corn syrup with its high dextrin content (55%). For most purposes cane sugar is all sufficient. The amount of sugar added to bring up the caloric requirement will be a half ounce during the first few weeks, after that about an ounce until at four months one and one-half ounces are added. It is usually inadvisable and unnecessary to add more sugar than this. Starch in the form of a gruel is a valuable food and may be begun at the second or third month. Much of it passes through undigested at the start, but makes no trouble unless the pediatrician examines the stools microscopically.

We then take some boiled milk and sugar[1] or cereal and mix them together and are ready to feed the baby. The mixture may be a rather concentrated one so that when we have divided it into five or six feedings the volume of each feeding will be smaller than the infant is accustomed

to take. There will be some danger of over-feeding if the infant is given all of such a mixture as he wants to fill his stomach and a danger that he will cry if his stomach is not filled. Furthermore, more water is needed, so the mixture is diluted at first with about an equal volume of water or gruel, at five months with about one-third volume of gruel and at nine months dilution is unnecessary. Some cereal from a spoon and meat broths and vegetable purees may be begun at six months.

A convenient form in which to add a green vegetable is the dried powdered spinach now on the market. This may be boiled into the milk. I have never found it necessary to feed a normal bottle fed infant more often than every four hours, and only very seldom any other infant.

With such simple mixtures as those described above there is rarely any danger of over-feeding. The infant's appetite will be a reliable guide as to the number of ounces at a feeding. Such a method of feeding a normal infant as has been outlined is only one of the many ways of fulfilling the infant's nutritional requirements. It is about the simplest as well as the most generally used method both in this country and abroad. It is neither new nor original and is outlined merely as an example of how the desired result may be accomplished. The sick or abnormal infant is treated by certain simple modifications of the above scheme.

The infant that is mal-nourished requires almost as much food per day as the normal infant of the same age. A fair estimate of his food requirements may be made by calculating what his weight would be if he had developed normally from birth. He should then be fed according to this weight rather than his actual weight. This may mean as much as ninety or more calories per pound. Unfortunately such undernourished infants often are unable to take this amount of food without digestive disturbances. In some the stomach is unable to hold the necessary volume. In others the digestion is incapable of caring for the number of ounces of cow's milk which seem to be necessary for the nutrition, although they may be able to care for breast milk.

If breast milk is unobtainable and cow's milk must be used it is usually possible to give a considerably larger amount, providing the buffer substance is removed or neutralized. This is most simply accomplished by the action of lactic acid produced by the growth of such organisms as the Bacillus bulgaricus or the Bacillus acidophilus. Such milk may be given undiluted to quite young infants and to it may be added a considerable amount of the difficultly fermentable corn syrup, even up to two ounces or over per day, providing this amount is necessary in order to bring up the caloric requirement. Such a food is concentrated and a few ounces contain much caloric value. I fully realize that the percentage of the constituents may be very high but repeated satisfactory experiences with such mixtures as "4, 10, 3.2–" is one of the things that has convinced me that percentages have little or nothing to do with infant feeding. If enough food cannot be introduced in the manner described, a 5 or 10 per cent solution of corn syrup may be given between feedings or glucose may be given intravenously or intraperitoneally.

Diarrhea occurring in any infant is a danger signal and usually requires some modification of the diet. Experimental evidence points to the fact that most diarrheas are due to bacterial decomposition of food in the upper intestinal tract. The stools give us no indication as to the causative factor (bacillary dysentery excepted). The indications for treatment are to give a food which is a poor culture medium and one which is completely absorbed. Decreasing the amount of sugar makes the food a poorer culture medium. Removing fat renders it less irritating and more quickly absorbed. The addition of protein in the form of casein curds or dried casein helps to keep up the caloric value. The addition of two or three c. c. of 10 per cent argyrol to each 100 c. c., or one teaspoonful to each five ounces of milk makes it a very poor culture medium. Artificial souring of the milk serves the same purpose as the argyrol and also makes the milk more readily digestible by decreasing the "buffer" substance.

These are some of the ways the food may be changed to meet the requirements of the baby with diarrhea. Above all we must treat the baby and not the stools. We must realize that the diarrhea kills by depriving the body of water and of food and not by any form of "intoxication." We must not let the infant die from starvation and water loss while we are dosing him with cathartics or giving him minimum amounts of food in the effort to render the stools normal. There is such a thing as a starvation diarrhea and also a successful treatment of diarrhea accompanied by the death of the baby.

In conclusion I want to point out the fact that there is a science of infant nutrition and that a few simple foods such as sweet and sour milk, milk curds and sugar comprise our entire useful armamentarium. The indications for the use of these are simple and readily understood by any one. The apparently brilliant results from various unusual and complicated formulae can always be explained on the basis of the underlying principles and could have been accomplished just as well by simpler means.

(1) It is assumed that the milk used is ordinary mixed herd milk, containing from 3.5 to 4 per cent of fat. Rich Jersey milk should not be fed to infants unless a portion of the cream is poured off. The caloric value of ordinary cows' milk may be calculated at eighteen calories per ounce. Two level tablespoonfuls of cane sugar, as measured in a medicine glass, or one ounce by volume of brown corn syrup, is equivalent to one ounce of sugar and has a caloric value of 120 calories.

DISCUSSION

Dr. McGuire Newton, Richmond, Va.—We are under obligations to Dr. Marriott for putting in the spotlight the percentage method of feeding and the routine examination of the stool as carried on, the differences of opinion as regards sugar, and particularly the danger that results from starvation in the treatment of diarrhea.

Dr. F. C. Moor, Tallahassee, Fla.—In using commercial corn syrup, what percentage of the sugar do you figure in ordinary commercial sugar?

Dr. H. Leslie Moore, Dallas, Tex.—In teaching the principles of infant feeding it is many years since I have made more than a mention of the percentage method. We have followed the simplified methods of feeding, merely letting the students know that there was such a method. The profession's turning over feeding to artificial food manufacturers is what got us into trouble. The general practitioners for the last two or three years have been learning a great deal about the simplified method and using it very successfully. The main reason why they are not getting results is that they are not boiling the milk. They have the correct idea and the correct formula usually, but they fail to boil the milk. I am also finding some difficulty with the milkmen who deliver the milk. They instruct the mothers that the milk is pasteurized and consequently does not need boiling.

Dr. John Zahorsky, St. Louis, Mo.—I do not wish for a moment to discourage the efforts that have been made in recent years to simplify our method of feeding infants. I want to call your attention to the fact that the simple method of feeding that is advocated by pediatricians recently is the same method of feeding that was recommended eighty years ago by Dewees, namely, half milk, half water and cane sugar. So modern pediatrics has not advanced in eighty years in spite of all our experimenting.

While we should have for our basic formula that particular simple feeding, I do not think the average pediatrician is willing to limit himself to those few foods either for the well or sick child. All practitioners who have used the simple feeding, even boiled milk, have found that some children do not thrive and do not do well for a variety of reasons and for them we have to resort to the empirical method, for the successful physician must occasionally resort to empiricism. They are not always empirical methods because there are certain bacteriological changes going on in the intestines which we can modify by increasing the carbohydrates or changing to some other carbohydrates, because some bacteria will ferment one carbohydrate and not another.

While I agree with Dr. Marriott that the simplified method should form the basis of feeding, we must add other basic principles.

There is one thing that has changed in recent years and that is our view regarding overfeeding. For many years it was taught that digestive disturbances were generally caused by overfeeding. Hundreds of infants have been starved to death by the misapplication of this theory.

Dr. Eugene Rosamond, Memphis, Tenn.—May we ask Dr. Marriott to discuss the advantage of stool examination in cases of gas-forming bacillus infections?

Dr. Fritz B. Talbot, Boston, Mass.—I agree in general with the principles Dr. Marriott has propounded. I feel rather guilty about examination of the stool, because I have written one or two papers about it. As a matter of fact, examination of the stool of infants is of little or no practical value. Examination of the stools in older children is often of value. With all such examinations and with all methods of feeding I notice that every one of the gentlemen who have discussed this paper has spoken of this as the

simplified method of feeding. I do not like any one to get bound down to any one method of feeding. Dr. Marriott has emphasized that we are feeding the individual baby and that we are not giving the "method" to the baby.

I should like to ask Dr. Marriott how many feedings he gives the baby when he feeds every four hours, a baby under four months and a baby over five or six months.

I would like to amplify what Dr. Marriott said about the vegetable gruel or soup. There are many ways of making these soups. I have seen vegetable soups that have not agreed with the baby, usually because they were not made correctly. Much more detailed directions should be given, especially when the modern gas stove is used for cooking. It makes a difference as to what kind of vegetables are used, because some of the bulky ones such as carrots require special treatment.

Dr. Marriott (closing).—One ounce of corn syrup by volume contains one ounce of sugar.

The examination of the stool for the presence of gas bacillus, a normal habitant of the gastro-intestinal tract, is rather interesting but has nothing to do with infant feeding. There is no valid evidence that there is such a condition as a gas bacillus diarrhea.

When infants are fed on the four-hour schedule we give six feedings daily during the first weeks of life. As soon as the infant is gaining weight consistently and becomes sufficiently satisfied to sleep through the night from 10 p. m. to 6 a. m. the night feeding is omitted. That may be in the first month and it may be as late as the fourth month.

A FURTHER REPORT ON THE CLASSIFICATION OF BIRTH PARALYSES AS ENDOCRINES*

By Lee Ben Clarke, M.D., F.A.C.P., Atlanta, Ga.

In May, 1920, at the meeting of the Georgia Medical Association, I first presented the results of sixteen months' work on birth paralyses, dating from February, 1919. The paper included a full description of three cases, selected from many then under treatment, all showing remarkable improvement both mentally and physically. It ended with the conclusion drawn from close observation after almost one and a half years' work upon these cases, that in the majority of instances there was no permanent birth paralysis or serious brain injury at birth in certain types and that many cases of mental and physical defect hitherto denominated as some form of birth paralysis were really endocrine troubles, or instances of disordered internal secretions. When treated as such, they presented remarkable results.

Another eighteen months' work in this field has served to strengthen the claim previously made and to render the stand then taken practically unassailable. It has witnessed the remarkable progress made not only in the cases reported in 1920, but in many other babies and children under care during the succeeding year and a half. The time has also served to strengthen the statements made regarding the correlation of the ductless glands. Much better results are to be obtained from pluriglandular treatment than from monoglandular. This latter conclusion has been arrived at by other observers working in adult fields.

In ductless gland therapy the physician has trained his long guns too much upon thyroid and pituitary, and has aimed over or away from that maligned, belittled and little known gland, the thymus. This organ plays an important part in the economy of early infancy and is an indispensable link in the great chain. Long years of error have taught that it must atrophy early and that its continuation is abnormal and death-dealing. Daily I become less a subscriber to the theory of status lymphaticus. There are many things yet to be learned. Delafield and Pruden's "Pathology" (1919) states:

> "Its hypoplasia (thymus) or excision in infancy seems to exert a deleterious influence on the development of the skeleton, the genital apparatus, and psychic maturity."

Such an older observer as Meckel states that there is "no trace of the gland at 12 years," and Heuson that "it wastes until the child is ten to twelve years, when it is ordinarily effaced." Waldeyer and likewise Hammar inform us that

> "it persists much longer, increases in size and weight, probably until puberty, and then slowly atrophies; at 15 years, weighs 40 to 50 grams; is considered an active organ even until the 40th year, losing its functions with beginning old age, 50 to 60 years. The duration of the thymus has apparently been underestimated."—Lewis and Starr Histology, 1913.

*Read in Section on Pediatrics, Southern Medical Association, Fifteenth Annual Meeting, Hot Springs, Ark., Nov. 14-17, 1921.

It must be confessed that we know little about it. Some time since, symptoms of recurrent laryngeal pressure in a two-year-old child disclosed through x-ray an enlarged thymus of syphilitic origin, as shown by positive Wassermann and verified by rapid disappearance of the symptoms under specific treatment, have aroused interest and curiosity.

All new movements and discoveries have been at the beginning empirical, and so must be the study of internal secretions until we have learned more about them. Especially is this true in infants, to whom pre- and post-adolescent measurements do not apply, and in whom examination of the more important of the special senses is futile.

Excluding pure cases of cretinism, unassociated, thirty cases of apparent birth paralysis have been under observation since February, 1919. The results obtained warrant the conclusions enumerated below as to the need for early recognition and early treatment in order to obtain results. Of these thirty cases one was eight months; eight, from one to one and a half years; seven, from two to two and a half years; five, from three to three and a half years; one, four years; four, from four and a half to five years; three at seven years, and one, at eight years. The age refers to the date of beginning treatment. The children over seven years have not received the slightest benefit. Those from two and a half to seven, some benefit, and in many cases marked results. One of the best results obtained was in a child two and a quarter years when first seen. The most satisfactory results, with one exception, were seen in those between eight months and one and one-half years.

I wish to repeat and to emphasize the conclusions reached in my first paper upon this subject:

(1) Many cases showing mental or physical deficiency and birth paralysis are due to disordered functions of the ductless glands.

(2) No case showing mental or physical deficiency should be dismissed as hopeless until it has been definitely established that it does not belong to this group.

(3) It is probable that few if any infants who survive have been permanently injured at birth and that the defect is entirely intrauterine.

(4) Early recognition followed by early and thorough treatment is necessary if the best results are to be obtained.

(5) X-ray studies of sella turcica and complete study of the spinal fluid, including a Wassermann, are invaluable in the differential diagnosis, since surgical conditions, e. g., pituitary tumors, etc., and syphilis, must be excluded.

Among the three cases previously referred to as having been described fully at the meeting of the Georgia Medical Association is one upon which I can report a complete cure. This case was exhibited months ago before the Fulton County Medical Society. The allotted time forbids my reporting more than one case. I shall, therefore, devote the remainder of my paper to a case history and description of a child cured physically, and remarkably benefited mentally, in slightly over one year's treatment.

Case No. 8.—January 12, 1920. Daniel W., born October 5, 1917, age 27 months.

Complaint.—Child cannot walk or talk. Stands badly and with difficulty. Cannot use limbs as a normal child. For instance, unable to place arms through sleeve or leg through rompers in being dressed. Mother recognizes that child is very backward physically, but thinks he is bright mentally. Seeks help for his condition.

Family History.—Negative.

History.—First child; full term; normal labor, six hours. No instruments. Mother 27 years old at birth of child. There was much difficulty in producing respiration. No cry for several hours. Baby was seen in consultation with attending physician by the writer when about thirty-six hours old, the attending physician not being satisfied with his condition. Could not nurse, was comatose, and not aroused for thirty hours. The writer gave a guarded prognosis at the time, expressing the fear that birth paralysis was present. There has been slight hoarseness since birth. No anal sores. No other evidences of specific infection. Breast-fed for six weeks, then condensed milk alone till thirteen months, then cows' milk. Now on cereal, bread and milk. Could not hold up its head for ten months nor sit alone till twelve months. Walked a few tottering steps at eighteen months, then quit for some time. Later attempted to walk, but could not accomplish it, and now can hardly stand. Wobbles. Cannot hold anything in its hands but for a few moments, and its speech is very bad and defective at two years. Dentition began at seven months. Eye and stomach teeth at two years.

Examination.—Head, no special marking; tonsils enlarged, but not diseased. Defective front teeth. Chest shows rosary. Enlarged epiphyses; large abdomen; no glands; heart and lungs normal. Very small genitalia. Grasps badly; very imperfect coordination of fingers; inverted left hand in grasping; right hand almost inverted. Knee jerk variable. In attempting to walk, will fall; can hardly stand alone. Also other evidences that child is defective mentally and physically. Has a dreamy appearance; far-away look, and cannot agree with mother that child is bright, as she appears to think. Difficult to attract atten-

tion and cannot hold it. Urine, slight acetone; four-plus indican; otherwise, negative.

Laboratory.—Spinal Wassermann and x-ray studies not done in this case.

Diagnosis.—Rickets is clearly present. Mental and physical defectiveness cannot be questioned. Hence, so-called birth paralysis.

Treatment.—First treatment directed toward improving rachitic condition. Cod liver oil not used. Child placed on vegetables, orange juice; generous diet otherwise and a preparation of lime and soda.

February 24, 1920.—Patient in office. Slight improvement in attempt to walk. Earliest attempts were a kind of talipes; now disappearing, although at times necessary to scold him and insist that he put his feet down. Grasp slightly improved. Condition otherwise unchanged.

Instructed to continue lime and soda preparation. Child placed on mixed gland tablets, one-half tablet, three times a day. To bring patient in for inspection monthly.

March 30, 1920.—Walking improved. Improved sounds in attempting to speak. General improvement in condition. Genitalia appear enlarging.

April 27, 1920.—Child's walking greatly improved; some throwing outward of the left leg, but very little. Attempts to talk. Sounds emitted are clearer. Attempts to grasp ideas better. Tries to communicate by speech, which he has never done before. In the four weeks from March 25 to April 26 has shown great improvement in every way.

May 9, 1920.—More improvement in walking. Speech clearer.

June 16, 1920.—Still improvement.

July 27, 1920. Walking better. Feet go down firmly. Some tendency to outward throwing of left leg. Easy to see that his mentality is much improved.

August, 1920.—Begins to feed himself. Can hold glass of water and drink from it; first time in life.

September 1, 1920.—The report on continued improvement very satisfactory.

November 1, 1920.—Child now using arms and legs so well was caught by mother in the act of pilfering jam from a safe, which was placed on a table, on which he had climbed by pushing a large, heavy chair across the room.

January 3, 1921.—A remarkable report. Patient in office today. Considerable improvement in all functions. This child, who twelve months ago could not talk or walk, or grasp save with difficulty, grasps an object fairly perfectly with one hand; transfers it from one hand to the other; turns the door knob with his fingers. He plays ball, throwing and attempting to receive it. He gets into the position of a baseball catcher, squatting and raising his body with ease. (This is an almost impossible position for these cases.) He walks very much better. Walked across the office floor, and with practically perfect coordination of his fingers picked up a tiny broom straw with his fingers from a rug without difficulty. He did this while on his feet, bending his body as would a normal child. Vocabulary increasing. Calls names much more plainly. He appears to understand everything spoken to him. Mother states that a few days ago she remarked that the fire was getting low, and without being so instructed, the child went outside and brought in a few pieces of coal in a little bucket with which he plays. The mind seems to grasp ideas not only directly, but indirectly, concerning subjects that might be mentioned.

March 26, 1921.—Today's report is the climax. The mother called the child, who did not answer. She eventually found him out in the alley. Surrounding the lot is an ordinary wire fence, placed there to keep chickens out of the garden. The latch on the gate had been placed too high for him to reach, and she wondered who had let the child out. Examination showed the latch in place, the gate hooked. She called to him to "Come in," feeling that he might have crawled under somewhere and she would discover where he got out. To her utter astonishment, he proceeded to climb the fence, which horrified her, as she expected him to fall. However, when she saw the confidence with which he grasped the wires and looked for a firm hold for his feet, she let him alone. She was fearful of what might happen when he reached the top. Nothing happened. He straddled the top, placed over the other leg as any normal boy would have done, and came down safely on the inside.

Discussion follows paper of Dr. Harper, page 540.

ENDOCRINES IN CHILDREN*

By W. W. Harper, M.D.,
Selma, Ala.

Several years ago, when Sajous wrote his book on "Internal Secretions," all men said he was a crank. A few years later, Harvey Cushing published his master work on "The Pituitary" and he was regarded as ultra scientific. But the profession now realizes that these men were medical sign-boards pointing the way to real science and truth. No doctor today can intelligently practice medicine without a working knowledge of endocrinology.

The author has endeavored to make this paper practical and has given the physiological reason "for the faith that is in him." As the ovary and testis are dormant during childhood, their discussion in this paper has been purposely omitted.

In action, the endocrine glands fall into two main groups:

(1) Those that act as inhibitors to other glands.

*Read in Section on Pediatrics, Southern Medical Association, Fifteenth Annual Meeting, Hot Springs, Ark., Nov. 14-17, 1921.

(2) Those whose actions are allied. In the first group are the pineal and thymus. Their hormones inhibit the development of the gonads. In the second group are the parathyroids, thyroid, pituitary and suprarenals.

The endocrines have a fourfold function:

(1) The regulation of skeletal growth.
(2) The development of the skin and its appendages.
(3) The regulation of carbohydrate metabolism.
(4) "The sensitization of the central and peripheral nervous system."

The more one studies endocrinology, the better one understands the child, for the under- or over-acting gland leaves its stigma; and fortunate is the pediatrician who can read "the handwriting on the wall."

The knowledge that certain of these endocrines are detoxicants explains why one child dies and another recovers from the same infection. As their secretions sensitize and stabilize the nervous system, it is readily understood why one child safely passes through the breakers while another, apparently as strong, lands on the rocks.

It is no longer a boasting matter to be the father of a ten- to twelve-pound boy, since science has decreed that such a child is an endocrine defective.

PINEAL GLAND

The pineal gland is an outgrowth of the third ventricle, is purely glandular in structure and is active only until puberty. Its secretion prevents mental precocity and inhibits the development of the testis and ovary.

THE THYMUS

Situated in the lower neck and upper thorax, it is most active during early childhood. Its known function is to delay the development of the gonads. In a recent contribution, Osborne states that the thymus aids the parathyroids in calcium metabolism and the anterior pituitary in the metabolism of phosphorus.

A well-known physiologist has quite recently discovered that it furnishes the coloring matter for the blood. Where the cause of asthma cannot be discovered one should suspect a thymus dystrophy.

PARATHYROIDS

They are four in number and are situated within the posterior fascial sheath of the lateral lobes of the thyroid. Their principal function is to "control the absorption and assimilation of calcium and to prevent the formation of guanidin, a muscle irritant." A deficiency of the secretion of the parathyroid causes tetany and spasmophilia. These conditions are quickly relieved by giving calcium intravenously or by mouth. In parathyroid deficiency the administration of calcium is preferable to giving parathyroid extract. In extreme nervousness following the exhaustion of severe illness the patient is often quickly quieted by giving calcium.

According to Osborne an underacting parathyroid causes aikalosis, while an overacting gland gives rise to acidosis.

"THYROID BUDS FROM THE PHARYNX" (PHYSIOLOGY)

(1) Regulates functions of skin and appendages: sweat glands, sebaceous glands, hair of the scalp, teeth.
(2) Regulates skeletal growth to a limited degree.
(3) "Regulates carbohydrate metabolism through its inhibitory action on the pancreas."
(4) Regulates mental development.
(5) "Counteracts the pituitary under certain conditions."
(6) "Sensitizes sympathetic system."
(7) Great detoxicant.
(8) "Stands guard over renal epithelium."

THE THYROID: ITS PATHOLOGY

Subthyroidism:

(1) Dry, swollen skin and mucosa, "due to deposit of mucin."
(2) Coarse hair.
(3) Narrow palpebral fissure, receding eye.
(4) Tongue too big for mouth, drooling.
(5) Delayed growth of bones, especially bones of face and legs.
(6) Short, stubby fingers, trident hand.

(7) Obesity, supra-clavicular pads and fat deposits on abdomen.
(8) Slow pulse, low blood pressure.
(9) Small sexual organs.
(10) Slow mental growth.

Hyperthyroidism:

(1) Sweating skin, thin fine hair.
(2) Loss of weight and strength.
(3) Children grow tall and slender.
(4) High blood pressure, tachycardia.
(5) Tremors of the hand.
(6) Patient is nervous and irritable.
(7) Noticeable stare (Stellwag sign).
(8) Exophthalmus (Von Graefe sign).

"In some cases of hyperthyroidism where the only symptoms are progressive loss of weight and strength with a continuous elevation of temperature, tuberculosis is often incorrectly diagnosed." To make a differential diagnosis Goetsch has established his epinephrin test, which consists in giving the patient 0.5 c. c. of 1-1000 solution adrenalin by needle.

"If there is an overacting thyroid, the pulse rate and blood pressure is raised 10 points, tremors appear and the patient becomes extremely nervous and perspires freely. These symptoms appear in ten minutes and pass off in one and one-half hours. A negative reaction is more important as it indicates a normal thyroid."

"An underacting thyroid causes children to be dull, sluggish, sleepy, slow moving."

"Every baby over ten pounds at birth should be suspected of having been influenced by prenatal deficiency of the thyroid. A fourteen-pound baby should have thyroid extract from birth. Its use will prevent many gastro-intestinal upsets and much nocturnal insomnia."

"Late healing of the cord (so-called infection of the cord) is rapidly healed by giving thyroid." Children who cannot hold up their heads at four months, cannot sit alone at eight, walk and say monosyllables at fourteen should be suspected of thyroid insufficiency. Frequently the only evidence of thyroid deficiency is backwardness in school.

According to Costex and Waldorf, "mongolism is due to a dystrophy of endocrine glands that have been infected with lues." Every case of unexplained tachycardia should make one suspect an overacting thyroid.

Underacting thyroid frequently causes eczema in children. The following two cases illustrate the detoxicating power of the thyroid.

Mary C., six years old, a child of good parentage, ran a temperature for one year of 101-103° with local symptoms of rheumatic arthritis. During this time she had an attack of endocarditis. In April, 1921, the endocarditis had disappeared, but she was still running temperature. The knees, ankles and wrists were still swollen and extremely painful. During the year she was seen and treated by a number of doctors without apparent benefit. In April she was seen by the most prominent pediatrician of the East, who pronounced her case hopeless. She was still running temperature, could not move without pain, and was as pale as wax. She was also seen by an orthopedist, who said that unless her knees were forcibly straightened and put in plaster of Paris she would have a pathological dislocation of the knees. This was not done.

At this time I began giving thyroid extract one-half grain three times a day. In a short while her temperature disappeared, the joint pains stopped and she began to eat heartily. Today this child is almost up to normal weight, has a good color, is eating the diet of a six-year-old, and is running and playing like other children.

N. H., a boy of 16, was brought to me six months ago with a severe arthritis of the left ankle. He had been bedridden for several weeks and was unable to get about without being carried. I gave him one grain of thyroid extract three times a day and in one month's time he could walk to my office, and today is apparently well, having had no return of this trouble.

I realize that "two swallows do not make a summer," but I shall report one case of chronic nephritis which has been apparently cured by thyroid extract:

Miriam, seven years old, a year ago had hemorrhagic nephritis following a tonsillar infection. After the tonsils had been removed and the throat had cleared up, the hemorrhages from the kidney ceased, but she continued to have casts in her urine for several months. These finally disappeared, but the urine was never free from albumin. A month ago I put her on thyroid extract, and since then repeated examinations of the urine show it to be albumin free. Of course it is too early to state that this result will be permanent. I merely report this case in order that in the future we may think of the thyroid extract as a curative agent in nephritis.

SUPRARENALS: EMBRYOLOGICALLY THEY "BUD FROM THE GENITAL RIDGE"

(A) "Cortex: Mesoblastic."
(1) Regulates development of sexual organs.
(2) "Regulates hair of the eyebrow and face."
(3) Develops the canines.
(4) Gives muscle tone.
(5) "Stimulates the emotions of fear and anger."
(6) "Inhibits the chromaffine system."

(7) "Stimulates the production of antitoxin."

(B) "The Medullary Portion Springs from the Sympathetic System."

(1) "Regulates blood pressure."
(2) "Vaso-constrictor of splanchnic vessels."
(3) Contractor of striated muscle.
(4) Dilator of smooth muscle.
(5) "Acts on pancreas to maintain sugar content of blood."
(6) "Through its chromaffine cells it maintains normal function of the sympathetic system."

SUPRARENAL PATHOLOGY

Cortex:

(1) Underaction
(a) Lessened skeletal growth with obesity.
(b) Rudimentary sexual organs.
(c) Short canines. Children tire easily, have no pep.
(d) Muscular weakness.
(e) "No resistance to infectious diseases."

(2) Overaction
(a) Excessive skeletal growth.
(b) Sexual precocity:
(a) Enlarged penis.
(b) Enlarged testicle.
(c) Hair on mons and axilla, eyebrows, face.
(d) Goslin voice.
(c) Long canines.
(d) Nervous, scrappy children.
(e) Energetic, thin.

Medullary Portion:

(1) Submedullary
(a) Low blood pressure.
(b) Slow pulse.
(2) Hypermedullary
(1) Hypertension, quick pulse.
(2) "Tall and weak individuals."

"Irritation (tumor) of the adrenalin cortex in infancy gives rise to sexual precocity." This is manifested by enlarged penis, testis, hair on mons and face and an adolescent voice. There is also increased skeletal growth. The canines grow unusually long and the child is easily angered and is known as a scrapper.

"Overacting adrenals make nervous, irritable, over-energetic children. Underacting, make children languid. They tire easily, have no 'pep.' Hyperplasia of the chromaffine cell produces tall, weak individuals."

The adrenals have a double function:

(1) An antitoxic or protective function through the cortex.

(2) A tonic effect through the epinephrin of the medullary portion.

Therefore the suprarenals should be given freely in diphtheria, pneumonia and typhoid, diseases "whose toxins especially attack and paralyze the adrenals."

It is claimed that chloroform first stimulates the chromaffine cells, raising the blood pressure, and later it exhausts them, the patient dying from vaso-motor paralysis. "To prevent chloroform collapse, adrenalin should be given intravenously."

In shock, the splanchnics are inhibited, i. e., dilated, with the result that all the body blood is in the abdominal viscera. Adrenalin, being a vaso-constrictor of the splanchnics should be given by vein in small, frequently-repeated doses. "Its action lasts only four or five minutes and should be repeated as often as this until shock is relieved."

Since adrenalin acts efficiently in even a 1 to 1,000,000 solution, it is recommended that in shock, eight ounces of this weak solution be given intravenously, so slowly as to require one-half hour for its giving. "Adrenalin further relieves shock by spurring on bodily activity through its power to mobilize sugar in the blood."

To get results, adrenalin should be given intravenously or subcutaneously. "When given by mouth it is so rapidly oxidized in the stomach that no therapeutic effect is obtained unless enormous doses are given." This is denied by Bandler.

PITUITARY: PHYSIOLOGY

Anterior Lobe from Pharynx

(1) Regulates connective tissue and bone growth.
(2) "Regulates growth of central incisors."
(3 "Influences development of ovaries and testes."
(4) "Develops the brain, gives a sound mind and good memory."
(5) "Regulates punctuality, neatness and order."

Posterior Lobe from Floor of Third Ventricle

(1) Influences carbohydrate metabolism.
(2) "Raises blood pressure by contracting arterioles. This action is maintained quite a while."
(3) Contracts bladder.
(4) "Stimulates diuresis through its action on blood vessels and through its direct stimulating effect on the renal epithelium."
(5) Stimulates mental development.

PITUITARY: PATHOLOGY

Subpituitary
(1) Sexual end skeletal undergrowth.
(2) Diminished hair growth on mons and axilla.
(3) Obesity, sugar tolerance.
(4) Low blood pressure.
(5) Slow pulse.
(6) Dry, rough skin.
(7) Weakness.
(8) Mental torpor, melancholia.

Hyperpituitary
(1) "Gigantism, if occurring before the epiphyses are ossified."
(2) Large separated central incisors.
(3) High blood pressure.
(4) Tall, thin, nervous, irritable children.
(5) Hysteria.

"The pituitary controls all functions based on periodicity, such as rhythm of poetry and music, punctuality, neatness and order." The history of the following two cases given me by my colleague, Dr. Pickering, illustrates the value of pituitrin in polyuria and enuresis:

A, male, age 14, weight 173 pounds. Suffered from nocturnal enuresis all his life. He was given one ampoule of pituitrin (obstetrical), three days later a half dose and three days later another half dose. Enuresis stopped at once and he has had no recurrence for 18 months.

B, male, age 16 years, weight 135 pounds. This patient suffered from periodic attacks of polyuria and enuresis. He never went longer than two days without an attack. He was given a full dose of pituitrin (obstetrical), one-half dose in three days, second half dose three days later. Polyuria and enuresis disappeared at once and there has been no return for the past three months.

DISCUSSION

Papers of Dr. Clarke and Dr. Harper.

Dr. [illegible]—I have been trying to give extracts from the endocrines for various diseases that we thought might have come from endocrine disturbance. Personally, I have not arrived anywhere with them. We know that thyroid extract for hypothyroidism, cretinism and other diseases due to hypothyroidism, does do the work. We all have children under observation for years who are gradually developing into normal children but they are taking thyroid extract three times a day. We have children whom we diagnose as having adrenalin disturbances and give them hypodermically adrenalin. I have had a similar case to the one the Doctor reported with polyuria which has been benefited very materially. But that is as far as I have gone.

Most of the so-called extracts of endocrines that are on the market and are given to children are perfectly useless, I am sure. They do not lead to any therapeutic results. We give them to children without any indications. We give them to children with polyglandular disturbances. There are several on the market and we give them indiscriminately. When we do not know what to give we give endocrines. I think we are running wild on the subject.

Is it a fact that endocrine therapy, thyroid extract and pituitary extracts, increase the child's resistance to infection? Children with marked endocrine disturbance, cretinism and other conditions, resist infection very well. You can raise the basal metabolism by both thyroid and pituitary extracts, but of its actual therapeutic value except in pure cretinism I have very serious doubts.

By that I mean, we should not discontinue our clinical experiments but should be very slow and careful about saying what we are doing. We must remember that many of these defects in young children will gradually get better whether we give endocrines or not. All of us should continue these studies but we should continue them much more carefully than we have in the past. Ultimately I think something will come out of it.

Dr. A. G. Jacobs, Memphis, Tenn.—Organotherapy is not a new subject. Hippocrates and his colleagues used to administer a concoction of spiders, lizards and frogs and obtained some striking results from their administration. In looking over the literature we notice a classification given by Timme. He divides human life into three cycles: first, from birth to puberty during which the main function of the individual is growth and development. There are certain members of the chain of endocrine glands that are active at this period. The second period begins where that ends. After growth and development ends the glands' main function is the struggle for existence and the reproduction of kind. In the third period these functions subside and the gland function goes on at a lessened rate until the spark of life goes out. Now there are different glands that functionate at different periods. During growth and development the thymus and the pineal and others seem to be especially active. The thymus is supposed to cease functioning at puberty. If it does not then the childhood characteristics are carried over and we have a weak youth with low arterial blood pres-

sure. The pineal does not seem to have worked out very thoroughly but it is supposed to have some control over muscular development. A child with poor pineal development is supposed to have weak, flabby muscles and to be weak generally. Now the thymus and pineal inhibit the gonads and the organs that come into play at that time. If a child has thymus trouble he is liable to develop some precocious sexual characteristics.

In the second cycle presented by Timme, the struggle for existence and the reproduction of kind, we have a certain set of glands that work together, the thyroid, parathyroid, pituitary and gonads (the testicle and ovary). It seems in order to make this fight for existence we need blood-sugar, which gives us energy with which to make this fight. These glands are the ones that are generally at work in that fight.

In the losing fight in old age, when we are going down hill, when the fires are burning out, the suprarenals keep up the fight as long as their quality lasts.

Dr. Walter J. Otis, New Orleans, La.—While treading the mazes of endocrinology we should watch our step. One factor was omitted from the papers, and the discussions, the basal metabolism determinant, which is an important factor in the endocrine studies of today. It has been found a valuable asset in studying the psychoneuroses, and syndromes met with in neuro-psychiatric patients. The giving of some of the glandular products has been found very beneficial in the asthenic and fatigue conditions we meet with in some of our patients. Especially is this true in the treatment of the psychoneuroses as met with in the treatment of ex-service men in our neuro-psychiatric hospitals and in every-day life. For the present we should do well not to claim startling results from glandular therapy until we are further fully acquainted with its complexities.

Dr. Tom A. Williams, Washington, D. C.—I wish to corroborate the last speaker. Many of these lesions are multiple due to massive hemorrhages. These papers represent clinical facts which are always commendable. The second paper, especially, related cases where no polyglandular preparation was given, but where one single endocrine preparation was used for a definite reason established clinically. That is clinical investigation. It is by coordinating clinical investigation like that that we learn. There is as much science in carefully taken and scientific coordination of these clinical experiments as there is in the physiological laboratory. No diatribe against endocrinology can outweigh these, whoever its author. The reasons for uncertainty are the ambiguity of clinical indications in some of the more difficult and complex cases. The cases that are presented here however are simple. I can cite cases in my own practice of that kind. I can cite numerous failures, like Dr. Zahorsky's. The problem of these is too difficult for complete solution at present. The way to solve it is not to give glandular preparations indiscriminately but to study the different factors, some of which we know, some of which we do not know, and ultimately the patient's symptoms as regards endocrines and then give one preparation. Thus we shall accumulate data and knowledge by which we can interpret the more difficult cases as we now do these simpler ones.

Dr. Philip F. Barbour, Louisville, Ky.—I had the pleasure of showing in a clinic last year before the Pediatric Section of the Southern Medical Association a choice collection of about as queer freaks as I have ever seen before or since. They were undoubtedly endocrine disturbance cases.

Perhaps some of you may be interested to hear the report upon the man who was demonstrated to you as a suprarenal cortex case. His blood pressure was 165 and he had great derangement in the circulation of the blood. A member of the staff treated him and put him upon adrenalin in large doses with the result that the blood pressure of 165 gradually came down to below 150 and the sores on the feet from which he suffered healed up. The man's feet were all swollen and blue. He went out of the hospital considerably relieved but not absolutely cured.

There is no doubt in our minds that there are many cases of endocrine disturbance. It is a field we are just going into. We shall have to study a long time before we get clear indications for endocrine treatment and we shall have to study longer before we get a satisfactory endocrine classification, but we cannot shut our eyes and say there is no such thing. We must believe there is something behind all this. The facts given by Dr. Clark and Dr. Harper advance us a little farther in our knowledge of this subject.

Dr. Oliver Hill, Knoxville, Tenn.—These excellent papers are a compliment to the man who is trying to do medicine without the supervision of these ultra-scientific, hairsplitting laboratory men who tell you that gland therapy of any kind is rot. A better understanding of glands is necessary for the general practitioner as well as the pediatrician. Some investigators know no more about diagnosing these cases than we do about treating them. Dr. Barbour's contention that we do not know how to correlate or bring together these different extracts is well taken. You have a case and you do not know what it is. You think the child has some disturbance of the thyroid and maybe you give thyroid extract and the child comes out all right. You are using these extracts empirically. I wish to caution you against using preparations from several pharmaceutical houses. Confine yourself to one pharmaceutical house because these things vary in strength and you may give a toxic dose or you may give a dose that is wholly inadequate. In other words, one grain from one pharmaceutical house may represent more than one grain from another.

What are you going to do with the cases of hypersecretion? How are you going to stop them? You can stimulate those who are "hypo," but what will you do with the one that has too much? I do not understand how one or two doses of pituitary extract would cure a chronic malady. The rational thing would be smaller doses over a long-continued time if you are going to supply what that individual lacks.

We want to get as accurate histories as we can, and to find what a given amount of an individual gland will do to the individual's syndrome of symptoms.

Dr. Clarke (closing).—I have been working for three years to try to bring about a means of diagnosing the glands involved, but have not yet been able to do so, and no one else has, so far as I can learn, in young infants. I had some results from mono-glandular treatment but did not continue, chiefly because of difficulty in diagnosis. I do not know anything about these cases yet. I hope to be able to classify them after a great deal more work on them. I am working alone, not following anyone else.

I should like to use thyroid on a little more than cretinism. The field is very little understood. The results of thyroid in mal-assimilated are marvelous.

I did not make the bold statement that there was no such thing as birth paralysis and birth hemorrhage. There is no possibility of injury to the brain tissue *in utero* before the child is born except through trauma. I refer to intra-uterine paralysis. It has been called retarded development. I expect results from the extra-uterine cases.

There are three types of palsies, the intra-uterine, extra-uterine and acquired. I did not go into that fully. I have not reached the stage in which I would use any glandular secretions to increase the resistance of my patient to a disease.

Dr. Harper (closing).—I am willing to be called a faddist if each man will go home and promise to report more progress next year. I shall report two cases:

A woman, 65 years of age, told me: "I have eczema of my hands. I have taken every salve in the drug store and I am getting worse." I said, "You are defective in thyroid." I told her to stop everything and I gave her a prescription calling for one grain of thyroid extract three times a day. In one month she was well.

Dr. Oliver Hill said he read a paper in Louisville and he thought it did not do any good. That paper was worth several thousand dollars. I heard that paper and after I went home a friend of mine who lived in Louisville wrote me that he was in a deplorable condition. He was in the railroad business and had risen to a high position. He is the man who settles all labor disturbances. He wrote me that he had been to five doctors in Louisville, all prominent men. He had a skin rash on his legs and when he was not scratching he was so nervous that he could not stay in bed. First, he went to a dermatologist, then to a neurologist and then to an internist and finally to a diagnostician. None agreed as to diagnosis. Treatment had been without benefit. When I saw him, his skin was as dry as powder, thick, rough and white as a sheet. The legs were scratched and bleeding. His metabolism was found to be minus 30. I put him on thyroid extract and he recovered. Do you not think, Dr. Hill, your paper was worth something? It kept that man out of the lunatic asylum.

DIVERTICULA OF THE ESOPHAGUS*

By Chas. G. Lucas, A.B., M.D., F.A.C.P., Louisville, Ky.

Any interference with the normal act of deglutition is a source of anxiety and soon causes the sufferer to seek medical advice. Of all conditions involving the esophagus, diverticulum is often the least suspected. As a rule, symptoms referable to this condition do not develop until or beyond middle life. Since the routine use of the roentgen ray numerous cases have been discovered.

According to Carmody[1] the esophagus begins six inches from the incisor teeth, back of the cricoid cartilage at the sixth cervical vertebra. It is ten inches long and passes through the diaphragm at the tenth thoracic vertebra, sixteen inches from the teeth. It is crossed by the arch of the aorta back of the middle of the first piece of the sternum, ten inches from the teeth.

Halsted classifies diverticula as follows:

"A. Pressure or pulsion diverticula:

"(1) Those of the pharynx.

"(2) Those of the pharyngo-esophageal junction: the border line cases, or the Grenz diverticula of Rosenthal; also known as Zenker's diverticula.

"(3) Diverticula having their origin near the bifurcation of the trachea just above the left bronchus. There are the epibronchial diverticula of Luetgert.

"(4) Deep-seated diverticula, mostly found near the esophageal opening in the diaphragm. These are also called epiphrenal. The orifice is generally a short distance above the diaphragm, the fundus of the sac resting upon it.

"B. Traction diverticula.

"C. Traction-pulsion diverticula."

The pressure diverticulum, first described by Zenker and Ziemssen, is usually found in the cervical portion of the esophagus, behind the cricoid cartilage on the posterior wall at the juncture with the pharynx. Judd[2] states that

"This weakness in the wall of the esophagus is the result of the arrangement of the musculature of the lower end of the pharynx and the upper end of the esophagus. During the act of swallowing considerable pressure may be exerted from the inner part of the esophagus and it is

*Read before the Southern Gastro-Enterological Association, meeting conjointly with the Southern Medical Association, Fifteenth Annual Meeting, Hot Springs, Ark., Nov. 14-17, 1921.

quite natural that the inner coats might be gradually forced through a chink in the outer coats and in this way form a simple pouch. The pouch would tend to increase in size each time the intra-esophageal pressure increased until it became large enough to hold accumulated food and mucus from the esophagus. The accumulated food would also tend to increase the size of the pouch."

In contradistinction to diverticula of other portions of the gastro-intestinal tract, these pressure diverticula contain only the mucous membrane and submucosa in the hernial sac.

Traction diverticula are not uncommon. They are usually found in the thoracic portion of the esophagus and are produced as a result of some previous irritation, often a broken down lymph gland with its resulting cicatrix or other pathological conditions of the pleura, lung or mediastinum, the adhesion pulling on the esophageal wall and gradually giving rise to the minute funnel-shaped diverticulum which increases in size as the result of increased intra-esophageal pressure. These diverticula vary in size from the small funnel shape to the size of a pear.

The symptoms depend upon the size and position of the diverticulum. In some cases dryness of the pharynx is the first symptom noted. This may persist for quite a while, followed by difficulty in swallowing and regurgitation of food. In some cases a choking sensation is noted, while in others, when the diverticulum has attained some size and is filled, the patient may complain of a "lump in the throat." Excessive secretion of mucus is often marked. This has been a pronounced symptom in a case under observation for several years in which a traction diverticulum developed after a severe pleurisy. Bad breath due to decomposing food in the sac is often noticed. Constant "indigestion" has been a feature in one of the cases in this report, and since being told of his condition, this patient has often noticed a gurgling noise in the sac, especially on manipulation. Pain is not usual unless ulceration occurs, but this may follow the decomposition of food or may be the result of irritation from hard particles of food or seed in the sac. As a result, peri-esophagitis may ensue with the formation of abscess and rupture into the surrounding tissues. In some cases with a large diverticulum, the pressure from a full sac may be so great as to bring on serious respiratory symptoms with increased difficulty in swallowing. Under such circumstances, vomiting may be induced for relief.

Occasionally a case may be seen where there are no symptoms referable to the esophagus. Judd reports the case of a man, age 42, who had been treated for "stomach trouble" for years, in whom there were no symptoms of esophageal involvement. An x-ray examination of the stomach was negative, but revealed a diverticulum in the lower third of the esophagus.

Diagnosis is made by means of the roentgen ray. With the patient in the right anterior oblique position in front of the fluoroscope, a thick barium-mucilage of acacia mixture is given in tablespoonful doses. Several plates are then made with the patient in the same position. After outlining the diverticulum with the thick mixture the ordinary barium meal is used to outline the entire esophagus.

The esophagoscope is also employed in some cases and is of service in determining the size and character of the opening into the diverticulum. Personally, I have not used it in any case.

During the past year I have encountered several diverticula and wish to report two cases illustrating the two types described above.

Case 1.—Mr. X., age 60, had the usual diseases of childhood. Only occasionally he had sore throat and he had three attacks of grippe. For twenty years he was subject to attacks of bronchitis and at one time he had pneumonia. He has not had influenza. He has had some evidence of indigestion during the past twenty years. He was first seen five years ago and was relieved by treatment.

About a year ago the patient returned with the following history: he was a good sleeper. He had no fullness or heaviness after eating unless too much food was taken. At times he had a feeling of soreness with gas and some pain under the shoulders. The character of the diet was immaterial. He has occasional sour belching, but no nausea or vomiting. His bowels were regular and he had increased in weight in the previous few years.

Physical examination was negative. After several plates had been made with the ordinary barium meal, a large diverticulum was found in the lower third of the esophagus. At this time some air was noticed in the cavity of the diverticulum. A week later he reported again and was feeling more comfortable. A thick barium mixture with acacia was used at this sitting and filled the cavity completely. A week later he re-

turned with complete relief of all symptoms. He was placed on a bismuth mixture with instructions to take it, in a half glass of water, twenty minutes before eating. Since then, when this plan has been followed, he has had almost complete relief from the "indigestion."

During the past summer, while away from the city and indulging in all forms of food, with a variety of alcoholic drinks, and omitting his bismuth mixture, he had an occasional return of symptoms, but had been in much better condition in regard to his indigestion than formerly. Of late he has passed through another attack of bronchitis. The Wassermann was negative.

Case 2.—Mr. Y., age 56, had the usual diseases of childhood without incidence. He also had chills and fever. In 1890 he had a very severe attack of grippe. Since then he has had several attacks, but none was severe. At 36, he had a severe tonsillitis and has had one attack since. He has not been confined to bed in the past twenty years except for three days during the influenza epidemic. He had complained of indigestion off and on during the past thirty years, large meals and alcoholic combinations predisposing. He is awakened nearly every night with gas and sour stomach. Soda gives relief. On awakening he feels well and has an appetite for breakfast. About 11 a. m. he is troubled with gas and gets relief from soda. This is repeated late in the afternoon, but he is comfortable after dinner. If solids are taken the patient has noticed occasional difficulty in swallowing and water is often taken to assist in the act. Pills appear to stick, occasionally. He is conscious of a lump in the throat and has noticed that pressure on the neck may bring bubbles of gas into the throat. At times he has some pain in the same region and also in the back of the head. His bowels are somewhat constipated. The stools small, but of normal color. He has lost no weight.

He was obliged to make a trip out West and, at my request, he stopped in Chicago to consult Dr. Frank Smithies. At this consultation, among several pathological conditions, a small diverticulum about the size of a twenty-five cent piece was found in the cervical portion of the esophagus behind the cricoid cartilage on the right anterior wall. Suitable recommendations for this and other pathological conditions found at this examination were made by Dr. Smithies, but the patient is one who is hard to control. Surgical intervention was advised, but has not been carried out. The use of bismuth was suggested in this case and at times gave fair results, but not such comfort as in Case 1. The Wassermann was negative.

Treatment from a medical standpoint applies particularly to the traction diverticulum. In some instances, like Case 1, it is likely that the patient may live comfortably for many years by careful attention to his diet. Coarse food and alcoholics should be avoided. In some cases it has been necessary for the patient to try various positions in swallowing. If much mucus and the evidence of decomposing food is present, lavage of the esophagus is indicated and, if possible, the thorough cleansing of the sac. In the case reported, the patient has been so comfortable that nothing more than the administration of bismuth has been attempted.

In the pulsion type the indication is distinctly surgical and the results have been brilliant.

Dr. Judd, of the Mayo Clinic, has been very much interested in this subject and in response to my letter concerning the results of the surgical treatment of diverticulum writes me that at his institution from January, 1908, to June, 1920, fifty-four cases were operated upon. To this he adds an additional thirteen from June, 1920, to the present time, making sixty-seven in all. I take the liberty of quoting from his letter:

"In general the results have been very satisfactory, indeed. We have seen some of our cases who were operated upon several years ago, who were completely and permanently relieved. However, we have had three or four who have complained of a sense of contraction at the time of swallowing and in whom it seemed best to pass a bougie. Usually after one dilatation this sensation disappeared. We have had one or two cases in whom there has been a tendency toward recurrence of the sac. In one of these I did a secondary operation which has apparently relieved the condition. In the other, passing a bougie accomplished the desired results. There have been three deaths. Two of these I have previously reported in my papers. The third was a similar case.

I have two of these cases in the hospital at the present time and just discharged one a day or two ago.

I am very much interested in this condition. I feel that the present plan of treatment gives very satisfactory results with very little risk from the operation."

BIBLIOGRAPHY

(1) Carmody, T. E.: New York Medical Journal, Vol. cxiii, No. 10, p. 127.

(2) Judd, E. S.: Surgery, Gynecology and Obstetrics, Vol xxvii, No. 2, p. 135.

700 Francis Building.

DISCUSSION

Dr. Irvin Abell, Louisville, Ky.—The pressure or pulsion type of diverticulum is as a rule found just at the upper portion of the esophagus back of the cricoid cartilage. This type is most favorable for operation, for the muscles and fibers of the esophagus are easily closed. Those that are deeper are usually difficult to deal with from a surgical standpoint. It is difficult to operate without an immense amount of trauma and it is a

question whether they should be dealt with surgically or carried along with the treatment the Doctor has suggested.

Dr. Lucas (closing).—One of these men had consulted a very reputable surgeon who advised against operation, and although two of us did advise operation, he would not allow it. He is now in bad shape. I believe he will ultimately come to operation.

SIGNIFICANCE AND DIAGNOSIS OF CARDIAC ANGINAL PAINS*

By D. D. Paulus, M.D.,
Oklahoma City, Okla.

During recent years there has been a decided tendency on the part of clinicians toward early diagnosis or early recognition of disease processes in the body. There is no doubt, however, that early diagnosis of heart disease and the proper evaluation of presenting symptoms in this condition have been sadly neglected. The reason for this, perhaps, lies in the fact that cardiac disease and cardiac functional diagnosis lend themselves poorly to laboratory experiments and investigation. The nature of chronic heart disease is often such that advanced pathology may be present before the symptoms are of sufficient importance or sufficiently distressing to the patient to lead him to consult his physician.

Of all the symptoms of cardiac disease, pain over the region of the heart will most frequently cause the patient sufficient anxiety to seek medical aid. If the physician now makes a thorough investigation as to the nature and significance of this pain, he may be able to detect early cardiac disease or functional disturbance, and thus by proper precautions the patient may be spared much physical discomfort in the future. Even life may be prolonged.

Too often the busy practitioner after a hasty examination of the patient's heart assures the patient that no physical signs are present and his fears are unfounded. Or if the pain is severe and in the nature of anginal pains, he gives such an alarming prognosis that the patient is in constant fear of disaster.

Pain in the left chest due to intercostal neuralgia, dry pleurisy, aneurysm or acute pericarditis is accompanied by signs of diseased process present. But to decide whether a pain in the region of the heart is due to organic disease, or functional disturbance, or to referred causes, is often difficult. Some of the most disturbing sensations in the region of the heart are not due to any organic trouble, yet the patient is fearful that such sensations may mean some kind of heart disease. Therefore he becomes exceedingly anxious, watches and mentally records every sensation in the left chest.

Neurotic individuals, especially women, may complain of precordial pain of moderate severity, often paroxysmal in character, which should not be classed as the type of pain belonging to the symptom-complex known as angina pectoris. These patients may complain of heart pain any minute and are often awakened at night with pain over the precordium. When seen in an attack the pain allows deep breathing, crying or lamenting or even moving about in the bed or around in the room. If a general examination of these patients is made, other manifestations of hysterical tendency are noted or the cardiac pain complained of may be a symptom of other causes of disturbed heart action, such as over-exertion, worry or mental anxiety, intestinal toxemia or the over use of tobacco, tea or coffee. One should remember, however, that the neuropath may be also a cardiopath and that neurotic persons may be suffering from the true symptom-complex, angina pectoris.

Chronic pain over the precordium is also seen in cases of valvular heart disease, in myocardial disease, in arteriosclerosis and in chronic nephritis, when the heart becomes burdened. The pain, however, appears below the left breast and is often associated with pain at or about the lower angle of the left scapula. The sub-mammary pain and hyperalgesia of chronic heart affections forms a contrast in many respects with the sternal and supra-mammary paroxysmal pains of angina pectoris with extension to the left

*Read in Section on Medicine, Southern Medical Association, Fifteenth Annual Meeting, Hot Springs, Ark., Nov. 14-17, 1921.

arm. Especially is this true if they first occur in an individual past middle life.

Associated with this pain, which may only occur on exertion, however, we have dyspnea, and if the hyperalgesia persists or recurs frequently in the course of chronic heart disease or disorder, it indicates a new phase. Hypersensitive tissues are not merely concomitant; they induce and supplement pain. It is now provoked even by slight pressure such as lying on the left side or turning over in bed or by taking a deep breath which otherwise would not produce characteristic heart pain.

There is another class of patients who frequently come to the physician because of precordial pain which may simulate very closely the milder attacks of angina pectoris. They are the so-called "asthenia universalis congenita" as described by Stiller in 1907. These individuals are slender muscled, undernourished, ptotic individuals with low lying heart, which for them represents normal.

Their hearts present no evidence of enlargement on percussion in the presence of impairment of compensation. They may have murmurs of the systolic pulmonary or mitral type, and even a direct bruit over the aortic area is far from uncommon. They are the possessors of hearts with a weakness of musculature; ready dilatability and imperfect resistance to and recovery from heart fatigue and over-strain. They are real cases of cardio-vascular instability, readily induced insufficiency, and exaggerated nerve response. They are striking examples of the readiness with which in the presence of a weakened heart cardiac pain and other reflex phenomena might be evoked and exemplified in every grade. They may simulate very closely mild angina pectoris attacks with a lesser degree of myocardial inefficiency. Yet these cases are not to be confused with this condition, because while the people of this class may present a condition of the heart muscle which gives pain from over-functioning or functioning no more than normal, they practically always complain of pain elsewhere. The physician is usually called upon to treat them for discomfort in other parts of the body, due to a hypersensitiveness of the entire cerebrospinal axis.

Cardiac anginal attacks also occur in children. It occurs in some cases following the administration of digitalis, especially in children suffering from endocarditis where there is great hypertrophy of the heart. In these cases the child complains of sudden spasms of severe pain over the precordial region, sometimes radiating to the left shoulder. The attacks may occur only once every few days and may last several seconds. According to Still, he has found the heart beat extremely forcible but not rapid, and it seems to him that the digitalis had induced spasmodic contraction of an anginal character. The attacks stopped promptly when digitalis was omitted.

Cyanosis cases in congenital heart disease are prone to certain attacks in infancy which might be regarded as anginoid. The usual history is of two or three attacks a day, usually after a meal. The infant suddenly becomes intensely distressed as if in acute pain, fighting for its breath and turning more and more cyanotic. After a minute or two the attack passes off, leaving him pale and collapsed. These little patients may not die during an attack, but death usually occurs in a few weeks or months. The accumulation of food and gas pressing against the diaphragm so distresses the already hampered right heart that a sudden spasmodic effort of the over-distended right side may occur to produce these anginoid symptoms.

Infectious aortitis may be caused by various acute infections, but syphilitic aortitis is by far the most common and important. There is no doubt that it is often a latent manifestation of syphilis and signs and symptoms of its presence are either lacking or so insignificant as to be entirely overlooked. Yet the importance of early recognition cannot be overemphasized, because it often leads to more serious symptoms of angina pectoris.

In the early stages of luetic aortitis the symptoms are extremely indefinite and not clear cut. Often they are not severe enough to alarm the patient. The first symptom and usually the most frequent is pain. Its characteristics are that it

originates under the sternum, that it produces a sense of constriction or compression and that it radiates to the brachial plexus, with characteristic arm localization usually of the left side, rarely of the right, and, rarely, on both sides.

Of other indefinite symptoms complained of, the first is fatigue. The patient is usually weak, neurasthenic, becomes easily tired, suffers from mental fatigue, mental disturbances and headache. Dyspnea is also an important symptom and is present in practically all cases.

The physical signs of importance are an alteration in width and contour of the aorta. Roentgen ray diagnosis is by far the most satisfactory method to demonstrate changes in the aortic arch. The Roentgen ray shows one or more of the following changes in the normal contour of aortic curve: enlargement of aortic shadow to the right, enlargement of shadow to the left with obliteration of normal aortic knob, enlargement both to right and left. Increasing density of shadow is also suggestive and reduction of aortic pulsation. Other signs of doubtful value, such as undue mobility of apex due to elongation of the aorta, may be present, but need not be discussed here, as time does not permit.

Let us consider briefly the anginal pains of angina pectoris. Angina pectoris is not a distinct disease process or clinical entity *per se*, but rather a clinical concept or symptom-complex which manifests itself usually by certain well known symptoms. The cases, however, with atypical manifestations are not infrequent and cause no end of confusion in the interpretation of their symptoms.

The average physician's conception of cardio vascular angina is a patient complaining of severe substernal pain coming on after exertion, radiating to the left arm and lasting a brief moment, yet compelling the patient to remain immobile on account of the physical suffering and pain, and a mental anguish that overwhelms him with a sense of impending death. Any great deviation from this is looked upon with suspicion and is not consistent with the disease. The anginal attacks, however, may vary considerably from this typical picture.

Depending on severity of symptoms, anginal attacks may be divided into minor and major. As regards the term pseudo-angina, it should be excluded from the classification as it merely indicates a lack of differentiation. From a practical standpoint it is not always wise to make any distinction between minor and major attacks in persons of fifty-five or sixty years of age. What are called minor attacks in potential cases must be looked upon in the same way as major attacks. In one sense its recognition is of greater importance than the major, for it may lead to appropriate advice that may prolong life.

The typical anginal pain of angina pectoris radiates to the left side of the neck and down the left arm. One should, however, be prepared for odd variations such as pain radiating down the right arm or down both arms. Sometimes the pain radiates down the ulnar side of the left arm or the pain may stop at the elbow, wrist, or run down to the little finger. Again it may start in the little finger, radiating up the arm to the heart. More uncommonly the radiation of the pain may be to the epigastric, lumbar or renal region or to the testicle. When the pain radiates to these regions confusion with other diseases may occur.

In very exceptional cases, an attack of angina pectoris may occur without pain and with only a vague sensation about the heart, but with a sense of impending death. Again some cases with severe pain may be attended by eructations or vomiting with often relief of pain following the vomiting.

Complete immobility during an attack is not essential to diagnosis. Exceptionally we may have a patient who seeks certain positions such as hands and knees to lessen the severity of attacks. Many physicians also place undue importance upon the infrequency of angina pectoris in women. While it is true that the proportion of women as compared to men suffering from this condition is far less, it occurs with sufficient frequency in women to warrant a very searching investigation. Some statistics place the

frequency of angina in women as compared to men at from 3 to 5 per cent.

Another commonly mistaken notion is that prolonged severe anginal attacks are inconsistent with the disease. Such is not the case, however. The attacks may occur in rapid succession or the severe pain may be so continuous that it lasts from several hours to twenty-four or more, with scarcely any apparent relief by medication.

Attacks that are regarded as thrombotic are as a rule of unusual severity, often accompanied by vomiting and frequently by signs of shock and collapse, entirely different from the ordinary anginal attack. The pain in these cases is usually lower in the chest than in typical angina and in some instances it is epigastric or beneath the sternum. Here the condition may resemble a sub-phrenic accident, as it frequently is accompanied also by a rapid, feeble and easily compressible pulse and other phenomena, but time will not allow of a discussion of these.

CONCLUSIONS

Pain, often of a more or less paroxysmal character, is a frequent finding in heart disease independent of angina pectoris. These pains are really protests from an overworked, inflamed or degenerated heart and may arise from the heart as well as the aorta. Whatever their source, pains over the precordial area demand a thorough investigation of cardiac function, etc., unless the condition present is obvious. Only by full and complete knowledge of the atypical symptoms of angina pectoris are we able to recognize many of its minor manifestations.

308 Patterson Bldg.

DISCUSSION

Dr. Douglas VanderHoof, Richmond, Va.—It is extremely important that we look upon cardiac pain (angina pectoris) as being a symptom of failing heart muscle. You are all familiar with the emphasis that Mackenzie has placed on anginal pains as a symptom of exhaustion in the cardiac muscle; and we know very well that the healthy heart, under conditions of over-exertion, may produce anginal pains very similar to those arising in cardiac disease. Therefore, the first point pertaining to the subject is the emphasis that should be placed upon angina pectoris as a symptom. Of course, it is also obvious that this symptom is protective in character in the same way that shortness of breath is protective, each of these symptoms causing the patient to desist from the exertion which produces it.

Another point is this: that there is a great variation in the gravity of these anginal pains. One individual with myocarditis may die in the first or second anginal attack. That, however, is most unusual, and I think all of us have a rather definite tendency to overestimate the seriousness of angina pectoris, as all of us have had patients who have suffered from severe angina, and yet have lived for many years, provided they have respected their cardiac insufficiency and have incidentally received intelligent treatment directed to the condition.

We must also emphasize the definite relationship of angina pectoris to syphilis, realizing that angina pectoris occurring in individuals under the age of forty is very commonly due to syphilitic arteritis (coronary, aorta, etc.).

I have also been impressed, somewhat against my wishes, by the relationship between the use of tobacco and angina pectoris. I recall several men over the age of sixty suffering from severe angina pectoris who were unable to walk over a square without being compelled to stop because of the pain. These individuals boasted of the fact that they had chewed tobacco for many years. In ten days after stopping the tobacco they could walk slowly a distance of two or three miles without pain.

Angina pectoris may be an early symptom of myocardial weakness which later in the progress of the disease may be replaced by definite shortness of breath. What I want to emphasize particularly is that angina pectoris is a symptom of failing heart muscle and that the chief drug therapy lies in the proper use of digitalis. There seems to be a general fear on part of the profession in the use of digitalis in full doses in cases of angina pectoris. It is the one drug, it seems to me, that is able to bring about definite amelioration in the frequency and severity of the attacks, and it should be used without fear and without hesitation. The well-known use of the nitrites as a symptomatic remedy is so well understood that it need not be discussed.

Dr. E. B. Bradley, Lexington, Ky.—In most cases of disease of the heart we have no pain at all. Syphilitic aortitis, pericarditis and angina pectoris usually give pain that is more or less severe, yet at autopsy sclerosis of the coronary vessels is often present where there has been no history of anginal pain during life.

It has seemed to me that aside from angina pectoris the most important cause of pain in the region of the heart is syphilis. High blood pressure in the aorta gives some pain even when it is impossible to demonstrate aortitis. However, it may be present.

It is very difficult to give a prognosis on cases with anginal pains. Many cases are rapidly fatal while others with apparently the same type of pain live a long time. Dilatation of the heart at times gives the same sort of pain that coro-

nary sclerosis gives and for the same reason, namely, an ischemia of the heart muscle.

Dr. John A. Witherspoon, Nashville, Tenn.—I am afraid from the discussion the impression has been conveyed that angina pectoris is not a serious symptom. It is a danger signal; it matters not how mild it may be or how severe. I am one of those who believe that Nature never acts without throwing out a red light. In the early stages of myocardial degeneration or beginning weakness, very frequently we have indefinite pains, substernal or otherwise. It may be due to the anemia (as some claim) of the centers from the seventh cervical down to the fourth dorsal, or it may be due to some changes beginning in the myocardium, but these pains are always suggestive of trouble. If the patient can only learn that, and especially learn his own limitations, he will be all right. Many of our business men and many men in middle life, who are already on a high business tension, are not disposed to take stock of their physical condition as they should, and the consequence is they go on heedless of these danger signals about the heart. We all know that in desperate attacks of angina pectoris patients may die suddenly and quickly, while others with care may go on for months or even years before death occurs. These pains are always significant. The most difficult thing is to differentiate between a true angina and the other pains which occur in the region of the pericardium. It is not an easy matter in the borderline case to say that it is a true angina.

I saw a case recently in Chattanooga of a business man, fifty years of age, whose arteries seemed to be soft. His blood pressure was practically normal. He had led a strenuous business life for a number of years, and at the close of a campaign, in speaking to a large number of people at a Confederate reunion, where he worked very hard, he was taken suddenly with pain in the precordia following a dinner, and the pain did not cease. I saw him four days later. The pain returned in from twenty to thirty minutes under the use of amyl nitrite. Morphin in doses of a little less than one grain a day had little effect. I believe he had coronary thrombosis. He had no cardio-renal disease. His urine was normal. These pains are danger signals at any and at all times. In these continuous pains the results are usually fatal as in the case above reported.

Dr. W. H. Witt, Nashville, Tenn.—One or two of the speakers have referred to anginal attacks that are difficult to relieve. Up to rather recently my impression was that these patients always die. I have seen several in which no continuous relief was secured by either morphia or by amyl nitrite. All died in the attack except one seen not long ago. He had received repeated doses of both morphia and amyl nitrite. By the addition of more rest than he had been having he recovered and has been practically well, with only slight attacks for a number of months. Prior to that my experience has been the same as that of others: that all those cases that did not obtain relief readily by morphia or amyl nitrite died.

Probably not quite enough attention has been drawn to the ease with which these attacks are brought on. As intimated by the essayist, it makes little difference whether the attacks are severe or mild, whether they are typical anginal attacks as described in text books, or whether there is slight precordial pain. If brought on by slight exertion or by overeating or mental excitement, they should be regarded as very serious. I have seen a number of patients die whose early attacks were very mild. One case was so quickly fatal that we were not able to say there was a typical attack of angina.

It is remarkable how commonly ordinary physical examination in these cases is negative. The heart sounds may be perfectly normal; the pulse may be perfectly regular, and the blood pressure either normal or below normal.

Dr. George Dock, St. Louis, Mo.—I was glad Dr. Paulus called attention to the fact that a heart pain was a thing we have to consider in connection with angina pectoris cases. While it is true there are so-called typical attacks, these are comparatively few in comparison with the large number of atypical attacks, so that the use of such a word as pseudo-angina is really of no great advantage. The important thing in connection with this subject is that there are a great many different kinds of pain that occur near the position of the heart, the relation of which to subsequent facts can be made out very often by a careful examination. The character of the pain has not been perhaps so clearly set forth in the various discussions as it might have been. I see pain very often in people who describe it well, especially in doctors. It is an interesting fact how many doctors have thought they had cancer of the stomach or ulcer of the stomach or duodenum, on account of their angina pectoris. I have been able to follow some of them to autopsy and have obtained their hearts, stomachs and duodenums. I have seen cases where very excellent gastro-enterologists have made a diagnosis of hyperchlorhydria in patients who obviously had cardiac signs of great importance, including angina pectoris, but of which they are not informed. The most important help clinically in such cases is dyspnea, as was brought out by the essayist. If one examines these patients very carefully without forcing the answers on them, he will find they are distinctly dyspneic. One doctor who thought he had cancer of the stomach had to stop on his way to my room on account of dyspnea.

I had another interesting case of a man who was brought in during his first attack, after a Christmas dinner. It was a highly typical case of angina pectoris. He gave a history of never having consulted a doctor; that he had never had a symptom; that he was a man of extraordinary health up to the time I saw him. He was over sixty. After his death one of his business associates told me that for two years he had concluded the patient was a victim of heart disease because he was short of breath. When reading minutes he was obliged to stop frequently to get his breath. These conditions are more frequent than one might think.

When the condition occurs in women, not infrequently a diagnosis of pseudo-angina is made.

It is interesting to note that such patients are brought in with a diagnosis of pseudo-angina and are said to be neurotic because they are Hebrews. They can have circulatory diseases. In women especially it is important to know the symptoms, to take the blood pressure, to examine the urine, etc., and work out the whole heart condition.

In most cases the condition means heart muscle failure. Still many cases of coronary disease go on for quite a long time before the heart muscle can be found involved. It is to be hoped the electrocardiagraph will reveal the muscle changes in time. So far I do not think we can be quite sure of the presence or absence of such changes in all cases.

The radiation of the pain as described by some of the speakers is not always quite as I see it. Although in a typical case the pain does go down the left arm, in a small proportion it radiates down the right arm or up into the head.

So far as keeping still or quiet is concerned, one of the most typical patients I had was a comparatively young man who had thrombosis of the anterior coronary. He had an ungovernable temper. When he had these anginal attacks he would go around the room swearing like a pirate.

One can do a great deal by giving a perfectly frank prognosis. Fortunately, most people with angina pectoris, especially with marked cases, are intelligent people, and one can tell them plainly if they have it. Give them the letters of Matthew Arnold and the letters and works of men like Sir William Gardiner, who describes his own case with heart block and heart pain. Give them Osler on angina pectoris and let them see what can be done. My own method for years has been to tell these patients plainly that they may die suddenly, to make their wills, and have no further responsibility requiring anything of that kind, so that no unusual loss will fall on their families.

In regard to treatment, I would differ with Dr. VanderHoof in regard to the use of digitalis. These patients ought to be put on a diet, to have their lives regulated, and do everything to get the circulation in the best possible condition. I believe if they need digitalis they are no longer angina cases. They are cases of heart failure of some kind.

Dr. Paulus (closing).—We can have an aortitis due to infection other than syphilis. It is these cases that often escape detection early in their course or are not given their proper emphasis because the Wassermann test is negative. Many of these cases will finally develop cardiac anginal attacks. Aortitis may develop in the course of various disease processes like a general streptococcic septicemia, and later these patients develop angina pectoris. Not all cases of angina will show gross pathologic lesions or even microscopic pathology in the myocardium or coronary arteries.

Some years ago Dr. LeCount of Chicago gave the post mortem findings in a series of angina pectoris cases or cases where anginal pains were the most marked symptoms. Some few cases showed very little definite pathology to account for the symptoms. This makes the pathologist skeptical at times of the proper ante mortem diagnosis. Nevertheless such cases exist. No doubt the angina must have been due to some spasm of the coronary vessel.

So far as the potential danger in these cases is concerned, as mentioned by Dr. Witherspoon, I may say frankly that I do not believe from our present knowledge of the condition we are ever able to tell definitely, that this man or that man will die in a short time. They are all potentially dangerous cases. You must be guarded in your prognosis. It is always a good policy to say angina pectoris is a danger signal, although this may not be necessarily so in a few weeks or a few months.

In the prolonged anginal attacks where we do not get relief by any of the means of medication we have at hand at present, it is a question of how soon the vagus inhibition or cardiac inefficiency or exhaustion will end in death. It would be well for us all to follow up these cases as much as possible from their earliest incipiency to the ultimate termination whether the patient lives in our immediate vicinity or at a distance, so that we can learn more about the results of our treatment and about the prognostic factors.

AN INTERESTING CASE OF PELLAGRA IN A YOUNG CHILD*

By Robert A. Strong, M.D.,
Clinical Professor Pediatrics, School of Medicine, Tulane University of Louisiana,
Pass Christian, Miss.

In presenting this case to the Section this morning I am prompted by the belief that it demonstrates, in a striking way, the characteristics of the dermal manifestations of pellagra. First, the typical symmetry of the lesions is illustrated with almost mathematical exactness. Second, the well-defined and sharply circumscribed line of demarcation between the inflamed and healthy skin is clearly shown. It also affords me the opportunity to report the results of the injection of cerebrospinal fluid from this case into the frontal convolution of two Rhesus monkeys, which was done at my request by Dr. William H. Harris, of the Department of Pathology of Tulane University.

I wish first to invite your attention to the typical illustration of the "butterfly lesion" on the face. Here we have an almost perfectly symmetrical lesion extending over the bridge of the nose and spread over an equal area on each side

*Presented in Case Report Session, Section on Pediatrics, Southern Medical Association, Fifteenth Annual Meeting, Hot Springs, Ark., Nov. 14-17, 1921.

of the nose. The line of demarcation between the healthy skin and the dermatitis is particularly well defined. This lesion was dry and consisted chiefly of desquamated scales and crusts, leaving an underlayer of skin which had lost most of its pigment. The line of demarcation was deeply pigmented. The lesions on the hands are also clearly shown. Here again we have the perfect symmetry, but the lesions were of a mixed type. They resembled a "weepy eczema." There were

numerous vesicles and bullae containing a seropurulent fluid in some areas of the eruption, while in other parts there were scales and crusts that were dry.

There was a very extensive intertrigo extending well over both buttocks, perineum and scrotum. This lesion differed from the others in that it was very deeply ulcerated and resembled a deep burn. At the time diarrhea was present and the sphincter was relaxed, resulting in the involuntary evacuations so frequently seen in the disease.

What appears to be an extensive lesion over the lumbar region is nothing other than a collodion dressing over the site of a spinal puncture. Goldberger,[1] in his experimental studies on the transmissibility of pellagra to the human subject, used defibrinated blood, nasopharyngeal secretions, epidermal scales, urine and feces from pellagrins in an attempt to infect human volunteers. It was thought, on account of the frequent neurological manifestations of pellagra, that the inoculation of cerebrospinal fluid from this case into a Rhesus Macacus monkey might prove to be interesting. Lavinder, Francis. Harris and Dearman had previously published the results of their observations on monkeys that had been inoculated with filtrates from ground liver, spleen, cord and brain substance from pellagrins and these workers furnished the only direct evidence at the time that pellagra was a communicable disease. After consulting Harris, it was decided that he was to inject 3 c. c. of spinal fluid from this case into two Rhesus monkeys and note the effect as supplementary work to his previous observations. This was done, but the results were negative after eight months' observation on the monkeys. This seems to be in accord with the subsequent observations of most of the above named workers and others and thus far I know of no work that will sustain the infectious theory of pellagra. So, until further proof is forthcoming, I believe the observations of Goldberger will stand unchallenged.

This case was moribund when it came into my Clinic at Charity Hospital in New Orleans and died ten days after admission into the hospital. The perfect symmetry and definition of the lesions in contrast with the dark skin, I believe, very clearly illustrates a very typical case of pellagra.

DISCUSSION

Dr. L. R. DeBuys, New Orleans, La.—This is one of a series of cases that Dr. Strong had on his service at the Charity Hospital, New Orleans. An interesting notation about pellagra in the Charity Hospital is that there have been relatively fewer cases since the war than before. What the reason is I do not know. This one showed all the classical symptoms. The butterfly lesions about the eye were particularly marked. Most cases are not so pronounced as that.

1. Goldberger: Public Health Reports, November 17, 1916, pp. 3159-3173.

TROPICAL DISEASES AND PUBLIC HEALTH

THE SUMMER PEAK OF INFANT MORTALITY IN SOUTH CAROLINA 1921: PREVENTIVE MEASURES INSTITUTED*

By E. A. Hines, M.D.,
Member State Board of Health,
Seneca, S. C.

The Census Bureau, late in 1920, gave to the world the information that South Carolina had the highest infant mortality rate of any state in the Union, 116 per 1000 births. While there are several obvious causes, such as a very large negro population and many large industrial centers, at the same time we are not unmindful of the fact that our reputation from a preventive medicine standpoint has suffered by this report. Shortly after the report was published, the State Board of Health, the health officers generally, the pediatrists, and several lay organizations, became interested as to the measures to be taken in order that our infant mortality rate might be reduced in 1921. These measures mainly centered upon the reduction of the summer peak of infant mortality. In this connection, looking back over a personal experience in the practice of medicine for thirty years, I came to the conclusion that after all probably the idea of concentrating our efforts largely upon the summer peak of infant mortality was an erroneous viewpoint.

The first step looking toward an investigation of the subject was a private conference with the Chief of the Bureau of Vital Statistics of South Carolina. I asked him to look up for me for 1921 the summer peak of infant mortality. He replied immediately: "There is no summer peak of infant mortality in South Carolina. The summer peak is in May as a rule, though this may vary slightly." Therefore, upon my request, he furnished me with the actual data from his records to bear out his verbal assertion as follows: "The peak of intestinal disorders was May in 1919, June in 1920, and May in 1921."

DEATHS FROM INTESTINAL DISEASES AND DYSENTERY

	1919 Jan.	Feb.	March	April	May	June
Intestinal diseases	25	40	36	68	192	170
Dysentery	4	2	7	21	60	32
	July	Aug.	Sept.	Oct.	Nov.	Dec.
Intestinal diseases	123	85	84	91	72	63
Dysentery	28	20	13	6	11	5
	1920 Jan.	Feb.	March	April	May	June
Intestinal diseases	36	38	35	67	115	164
Dysentery	1	2	4	7	38	45
		Aug.	Sept.	Oct.	Nov.	Dec.
Intestinal diseases		119	161	101	77	68
Dysentery		24	39	26	6	6
	1921 Jan.	Feb.	March	April	May	June
Intestinal diseases	30	41	47	130	181	177
Dysentery	3	4		23	49	23

DEATHS UNDER TWO YEARS FROM INTESTINAL DISEASES AND DYSENTERY

May, 1919	170
June, 1920	177
May, 1921	150

Feeling so strongly that possibly the conditions prevailing in South Carolina might be duplicated elsewhere, I wrote to Dr. Wm. H. Davis, Chief Statistician for Vital Statistics of the Bureau of the Census, Washington, D.C., asking for information on this subject. He very kindly gave me the two tables of deaths under one year of age reported by telegraph weekly from sixty-two of the largest cities in the United States from April 2 to August 1, 1920, and 1921. It is interesting to note that in our largest cities like Chicago, Philadelphia, New York, Boston, Los Angeles, San Francisco, Birmingham, Minneapolis and St. Paul, in general the death rate is higher in the spring months, April and May, than in the months from May to September, inclusive.

Pediatricians have recently become keenly interested in the infant mortality rate of Minneapolis, where the campaign for breast feeding has been carried on so assiduously and effectively by Sedgewick and his co-workers. In 1920, the highest death rate was in April and May according to the report of April 17 and May 15, the highest being 21 deaths in the week of May 15. In the summer months, many

*Read in Section on Pediatrics, Southern Medical Association, Fifteenth Annual Meeting, Hot Springs, Ark., Nov. 14-17, 1921.

weeks average 6, 7 and 8. In 1921 the highest death rate was April 23 and May 14, showing 13 and 15 deaths, respectively. In the summer months several weekly reports only showed five or six deaths. In other words, the summer peak in Minneapolis has been entirely eliminated.

Less than ten years ago the Census Bureau gave out the report that St. Paul and Minneapolis, "the twin cities," had the lowest adult mortality rate of any cities in the United States and the highest infant mortality rate. For the sake of argument, let us hope that the campaign for breast feeding has brought about this wonderful change. I may say that upon reference to the chart we find that St. Paul's record is better than that of Minneapolis, for in several weeks in August only one death each is recorded with the lowest mortality throughout the summer months and the highest in the spring months. Perhaps the keenest interest of the world really centers upon New York. Hence I wrote Dr. Josephine Baker, Chief of the Bureau of Child Hygiene of the City of New York, and probably her own words in reply will interest you most, as follows:

New York City, October 25, 1921.

For many years in New York City in fact up to and including 1917, the baby death rate was higher during the month of August than it was at any other time during the year. This was due to the annual increase in deaths from diarrheal diseases during the summer months. This summer peak of infant mortality became progressively lower each year, but stood out as the highest point of the yearly death rate. Beginning with the year 1918, a very marked fall was observed in the summer death rate. In 1918 the highest infant mortality rate was reached in October, but this was due to the influenza epidemic. The next highest point for that year was in March. In 1919 the highest point was in January, while in 1920 the highest infant mortality rate was recorded in February, due to the second influenza epidemic. Thereafter the rate showed a very striking and marked decrease with a slight elevation during August.

We have ceased to think of the summer as our period of highest infant mortality. When one looks back for ten to fifteen years, the contrast of the infant death rate during the summer months is most remarkable. Ten or twelve years ago it was not uncommon in New York City to have as many as 1000 to 1500 babies die in one week during July and August. For the past three or four years the highest number has been 350 in one week of this period, and during the past summer, 1921, the highest number of infant deaths we have had any week during the period was 247. This shows strikingly the marked reduction in the death rate from diarrheal diseases. A study of the infant death rate in this city from groups is as follows: congenital diseases, 15.9; respiratory diseases, 12.7; and diarrheal diseases, 31.2.

At the present time our highest mortality from diarrheal diseases still occurs in August, but that rate has been so reduced that it makes very little impression upon the baby death rate as a whole. I am sending you a chart showing the way in which our infant mortality has varied by months during the years 1915-1919; inclusive, also a table showing infant mortality under one year in New York City, compared by months, for the same years. The third table shows infant mortality for the past fifteen years by disease groups. I may say in this connection that in 1907 our total infant mortality during the year was 144 per thousand reported births; for the first ten months of this year it has been 74 per thousand reported births.

We are firmly convinced of the necessity of carrying on an all-year-round campaign for the reduction of the baby death rate. Summer work alone will do little, if anything, to combat the excessive infant mortality from diarrheal diseases at this period. If this work cannot be carried on throughout the year, at least it should be begun as early as April to have any effect.

With the hope that some of this information may be helpful, I am,

Cordially yours,
(Signed) S. Josephine Baker,
Director, Bureau of Child Hygiene.

Now, as to our preventive measures in South Carolina. Perhaps some extracts from the report of our Bureau of Child Hygiene may interest you.

The program for public health in South Carolina is so arranged that concentrated effort is directed toward baby welfare work during the spring months, April, May and June, with the hope of reducing the high mortality rate occasioned by summer diarrhea.

During this time lists of expectant mothers and new babies are secured, mothers are visited in their homes, advice is given and they are encouraged to visit the health center frequently; baby conferences are held where babies are examined by specialists; meetings are arranged where baby health programs are given; and educational propaganda is disseminated through the newspapers.

During the spring campaign of 1921 almost every welfare organization in the State cooperated with the Bureau of Child Hygiene in this effort to reduce the high rate of infant mortality.

The South Carolina Better Baby Association of Palmafesta, the great trades display of South Carolina, offered to cooperate by conducting a baby contest, giving space for a baby booth in the exhibit building, setting apart one day of Palmafesta as "Baby Day" and featuring a baby parade. Thus the baby was exalted into equal prominence with the automobile and the cotton crop. Incidentally the baby parade, led by a huge stork and featuring all the necessities of healthy babyhood with a plentiful sprinkling of wee toddlers bearing banners, was voted the best parade of Palmafesta. The Governor issued a proclamation setting apart the week beginning April 24 to be observed throughout the State as "Baby Week."

The State Sunday School Association offered to cooperate by including in its cradle roll activities a baby health program. It was proposed by this organization that during "Baby Week" meetings should be held in eighty-five towns, stressing a baby health program. Previous to "Baby Week" and preparatory to the meetings, local Sunday school committees were busy with home visitations, where the purpose of the meetings was explained and 20,000 pamphlets on "Summer Diarrhea of Infants" were placed in the hands of mothers. These pamphlets were supplied by the Bureau of Child Hygiene.

At the annual convention of the Federation of Women's Clubs held the first week of April the attention of the audience was directed toward one side of the room where a large flag was suspended from the ceiling. The flag, when raised, revealed a large canvas picturing a cotton field with a little log cabin in the rear and several huge cotton plants in the foreground, with real cotton hanging from the cotton bolls and real baby faces peeping through. One of the club women recited "Where Did You Come From, Baby Dear?" and was answered by one of the babies in the cotton bolls. Another club woman sang a lullaby and as the flag slowly dropped over the baby faces there was scarcely a dry eye in the audience. The Governor's proclamation was then read and an appeal was made to the Federation. Needless to say a resolution was passed pledging every club in the State to support the baby campaign.

The League of Women Voters also offered cooperation. The American Red Cross and the State Tuberculosis Association were already cooperating agencies by virtue of a previous agreement with the State Board of Health, as was also the Metropolitan Life Insurance Company. Local Metropolitan Life Insurance agents assisted greatly by giving publicity and urging their policyholders to attend the baby conference.

Merchants cooperated, one store giving one week for a continuous baby conference, during which time the store was a veritable baby carnival. Doctors and nurses, however, attended to the serious task of examining the babies and advising mothers.

The State Sunday School Association held eighty-five meetings with an attendance of 6,375, where talks were given by some of the leading pediatrists and physicians in the State. These talks stressed the preventive measures to be directed against summer diarrhea. Nurses addressed 112 public meetings with an attendance of 8,121, giving a total of 14,516 people reached from the lecture platform.

Following "Baby Week" the public health nurses, forty in number, conducted a series of baby conferences, carrying these into the very rural districts. One hundred and fifty-one conferences were held, at which 2,111 children were examined. Three hundred and fifty-seven visits were made to expectant mothers, 381 to post-natal cases and 1,145 to infants under two years of age.

Owing to the fact that the Bureau of Child Hygiene does not have sufficient funds to employ its own staff of nurses, but is dependent upon those nurses employed by other agencies and engaged in generalized public health nursing activities, we are handicapped in prosecuting an intensive baby welfare program for the early spring, as nurses are during the month of March completing their school inspection work.

We are hoping, however, that the vital statistics at the end of the year may show that many babies' lives were saved through this campaign.

I should like especially to mention the publicity secured by the cooperation of the South Carolina Sunday School Association, inasmuch as this Association took advantage of the National Sunday School Week beginning April 24 and co-operating with practically all the health agencies in the State, put on an intensive state-wide campaign in the churches and Sunday schools looking toward the enrollment of babies in the cradle roll department. This necessarily brought the mothers and the babies to the church or Sunday school room and a large part of the program was given over to the health officials and pediatrists for lectures and personal interviews with the mothers on the subject of child hygiene. The vast influence of a great interdenominational Sunday school association was thus brought to bear in this way for the first time, we believe, in this country. The following advanced information appeared in the press recently and is not without interest:

Washington, October 19, 1921.—Eighty-six of every 1000 babies born in the United States die before reaching the age of one year, the Bureau of the Census, in printing figures for 1920, intimates today.

In South Carolina births in 1919 numbered 44,624; and in 1920, 47,777, the percentage of increase being 7.1. Deaths of infants under one year of age numbered 5,531, or 116 per 1000 population. Of these infant deaths 3,545 were negroes.

Figures for individual South Carolina cities follow:

CITY	Births	Deaths Per 1000
Anderson	533	94
Charleston	1,558	209
Columbia	1,315	133
Florence	375	179
Greenville	571	109
Spartanburg	557	104

Of the above cities, Spartanburg alone shows a decrease in infant mortality since 1919.

The whole object of this paper is to show that the reduction of infant mortality is primarily to be effected only by concentrated all the year round effort. We should speedily eliminate, therefore, the idea prevalent over the greater part of the world and probably to a very large extent in the South, that only in the summer is it necessary to pay much attention to the subject. While I do not contend that there is no danger in the summer months, I wish to maintain that the term summer peak of infant mortality is now generally a misnomer and that concentrated effort, if carried out at all, should begin much earlier than heretofore has been the case. The latest chart available from the Children's Bureau is that of 1918, which you will note shows a marked summer peak in the month of August for the registration area. I regret that no recent chart is available, but suffice it to say that the problem probably remains a menace in many rural sections in the summer.

DISCUSSION

Dr. A. S. Root, Raleigh, N. C.—The summer peak of infant mortality in North Carolina is in May as in South Carolina. The most important single prophylactic measure is breast nursing and the maintenance of breast milk. I think that every community of any size, 10,000 or over, should furnish lactic acid milk for its sick babies during the summer months. This will have to be done through some public health agency or through some civic organization. Since Finklestine pointed out the value of lactic acid milk there is not a large city in which it is not used for diarrheal cases. The smaller cities should have it. The Wake County Public Health Service prepares and sells it at the nominal cost of 20 cents per quart and gives it free to every baby whose parents are not able to pay for it. I think if we could stimulate the smaller communities to get lactic acid milk for their babies it would mean a lowering in the morbidity and mortality rates.

Dr. Robert A. Strong, Pass Christian, Miss.—I can think of no one factor by which we can help to reduce infant mortality at the present time greater than the establishment of newly-born services throughout the South of the type that Dr. DeBuys so thoroughly described yesterday afternoon in this Section. The previous speaker mentioned breast feeding as an important factor and Dr. Hines has told you of the work of Sedgewick and his associates in Minneapolis to encourage breast feeding. It is precisely along this line that the newly-born service will produce its greatest good. The mother can be reached when the child is in early infancy and the breast milk

can be saved before she and the grandmother and the neighbors decide that the "breast milk will not agree." I shall only repeat the little maxim that I gave yesterday, "As the twig is bent, the tree inclines."

Dr. W. W. Harper, Selma, Ala.—I suppose, with the exception of the doctors around New Orleans, I am the farthest South of any of you. Summer diarrhea is a scourge in our community. A number of years ago, while studying in Edinburgh, I asked for information in regard to summer diarrhea and was referred to a woman doctor who was conducting a hospital where the babies were treated with isotonic sea water. In answer to my question as to its prevalence, she said: "Yes, we had quite an epidemic last year; we had six cases." I replied, "Six cases! Why, I had a hundred last summer." I do not think Dr. Marriott sees the type of case that we see in southern Alabama. He said he had not seen a single case of bacillus infection. A few seasons ago we made cultures of the stools during an epidemic and the result was that of 100 cases 47 contained only the gas bacillus, 50 were cases showing the Shiga bacillus and the other 3 were streptococci. All the streptococcic cases died. We did not lose a single case of the gas bacillus infection. These cases presented identically the same symptoms. The gas bacillus cases are quickly cured with lactic acid milk.

In our cases we have noticed that the peak is reached in May and June. During July and August there seems to be a marked lessening of new cases. In September there is another flare-up. I have never seen any scientific explanation for these results. In May and June the days are hot and sultry, while the nights are cool. In July and August it is hot during the night. In September we have the same temperature variation as in May and June. My idea is that the babies become chilled in the early hours before day in May, June and September and that their intestinal mucosa is thus rendered more vulnerable.

Dr. Hines (closing).—I regret very much that I cannot enlighten Dr. Harper on the question he asked. I suppose he wished to bring out the effect of seasonal temperatures. Of course, that has been thoroughly studied in many parts of the world. Dr. Royster, a prominent member of this Section, was one of the pioneers in studying the effect of temperature upon these diseases, but I do not think he has come to a definite conclusion about it.

The whole purpose of my paper was to emphasize the necessity for some means to reduce the summer mortality among infants in the South. The great proportion of the laity throughout the United States look upon summer diarrhea as the bugbear of infant mortality. I believe it is up to you and to me to get out and lecture to them and make every effort to cooperate with our state and county departments of health and utilize every other means at our command to bring down the summer peak of infant mortality.

SURGERY

RAILWAY, INDUSTRIAL, GYNECOLOGICAL, OBSTETRICAL AND UROLOGICAL

PLASTIC OPERATIONS FOR DEFECTS DUE TO NOMA*

By J. Shelton Horsley, M.D.,
Richmond, Va.

Noma, or cancrum oris, occurs almost exclusively in children. It is seen chiefly in insanitary conditions, and when the cleaning of the mouth and teeth has been greatly neglected. It also occurs after scarlet fever and typhoid. All three of the cases reported in this paper followed typhoid. The mucous membrane is most often affected and the disease may be limited to the mucosa. When extensive, it spreads rapidly and involves uniformly all the tissues with which it comes in contact—bone, muscle, fascia and skin. In this respect it resembles rodent ulcer.

There is usually but little pain in noma. Often the severe cases, in which the bone and the whole thickness of the cheek are extensively affected, result in death, but some patients recover.

The treatment for the acute cases is, first of all, preventive and general, in attending carefully to the toilet of the mouth in any child who has an acute infectious disease, and in keeping up nutrition after the disease has developed. In the active stage the affected area should be thoroughly cauterized with an electric cautery.

Severe cases that recover have a very distressing deformity. The defect involves the cheek and the corner of the mouth. The scar tissue makes firm contraction and may interfere with nutrition because of the impossibility of sufficiently masticating the food. The chief indication for operation, however, is the deformity, which is often very repulsive. The principles of the operation for this condition do not differ essentially from the principles of other plastic surgery of the face, except that there is always extensive scar tissue and that usually the bone as well as the soft tissue is involved.

I have operated upon three patients for deformity following noma. The report of these cases will show the type of operation done.

Case 1.—R. E. This little girl when six years of age had typhoid fever, which resulted in noma of the left side of the face. A considerable portion of the left cheek sloughed out, including part of the bone of the lower jaw. The saliva would constantly dribble from the mouth. The defect was repaired by turning down a flap from the upper cheek, after fully dissecting and freeing the tissues in the neighborhood of the deformity. A few weeks later that portion of the flap that bordered on the margin of the lip was covered with a flap of mucosa taken from the inner side of the lower lip. Several slight plastic operations were done subsequently, and her condition now, seventeen years after operation, shows almost no facial deformity.

Case 2.—Jesse P., aged 9, in June, 1919, had typhoid fever, which lasted about a month. During convalescence a gangrenous patch appeared at the left angle of the mouth. An area about the size of a half-dollar, which included the whole thickness of the cheek, sloughed out. When he recovered the jaw was almost ankylosed by the scar tissue. I operated upon him first on December 22, 1919, dissecting away the scar. A small abscess was found in the cheek and no further attempt at plastic operation was made at that time. On March 17, 1920, a flap was outlined from his neck, with the base of the pedicle just below the left border of the lower jaw, and the tip one inch below the left clavicle. The pedicle was dissected up to about 2 inches from the tip of the flap, and was "tubed".

Six days later, under local anesthesia, the flap was further dissected free, being left attached only at its tip. Eight days later the flap was dissected free at its tip and turned into the raw surface which was made by dissecting away the scar tissue in the cheek. The tissues of the cheek had been undermined and the raw surface at the tip of the flap was tucked under the upper edge of the wound in the cheek with the skin surface within and held in position by mattress sutures of linen. A few punctures were made in the pedicle of the flap to relieve venous tension. The raw surface in the upper part of the chest was covered by undermining and suturing the skin.

On April 21 the pedicle was partially divided. On May 10 the pedicle was completely severed and the flap was folded over so that the defect in the cheek was covered with a graft having an epithelial lining both internally and externally. The

*Read in Section on Surgery, Southern Medical Association, Fifteenth Annual Meeting, Hot Springs, Ark., Nov. 14-17, 1921.

condition was considerably improved. The work, however, has not been completed, for the patient lives in a distant town and it has been impossible to induce him to return for further operation and treatment.

Case 3.—Benny C., of Anderson, S. C., aged 9, had a very conspicuous deformity following noma. He contracted influenza in November, 1918, and typhoid fever in January, 1919. Following typhoid a black spot appeared in the center of the right cheek, and grew rapidly. At the end of two months nearly the entire right side of the face had sloughed away. He was admitted to St. Elizabeth's Hospital on March 17, 1920. The illustrations show the extent and character of the

Fig. 1, Case 3. Photograph of a deformity following noma in Benny C. The right cheek and a large portion of the upper jawbone, together with some of the lower jawbone, had been destroyed. The lower jaw was firmly fixed to the remaining portion of the upper jaw. A good portion of the orbital plate of the upper jaw had been destroyed. He could eat only by thrusting food through the defect.

deformity. All of the right cheek and a good portion of the right side of the lower jaw and of the upper jaw had sloughed away, including part of the orbital plate of the superior maxilla. The lower jaw had grown to what remained of the upper jaw and there was complete ankylosis. The patient could feed himself only by pushing food through the defect (Fig. 1).

The first operation was on March 19, 1920. A flap was outlined from the right side of the neck and chest, as shown in the illustration (Fig. 2). The pedicle was "tubed." The bad teeth that remained on the left side were extracted. At intervals of several days, under local anesthesia, the flap was gradually dissected free, so as to develop the blood supply from the pedicle. On April 3, 1920, under ether, the scar tissue was trimmed from the edges of the defect and the healthy tissue was undermined. This, however, did not release the lower jaw, which was firmly ankylosed to the upper jaw, and a V-shaped section was taken from the lower jaw, near the angle. I did the Esmarch operation. The flap was freed and fastened, with the skin surface inward, to the tissues along the upper portion of the defect, which had been previously undermined. A flap was then outlined on the forehead, with the base, including

Fig. 2.—Photograph showing defect and the "tubed" pedicle flap in Case 3. The flap was gradually dissected free at intervals of several days, so developing a blood supply in the pedicle.

the right anterior temporal vessels and the tip of the flap on the left side of the forehead.

On April 17, under ether, the flap from the forehead was turned down. The flap from the neck had been sutured with the skin surface inward and the flap from the forehead was placed over the raw surface on the flap from the neck, so that the skin surface of the frontal flap was outward. The tip of the frontal flap was punctured in several places with a sharp pointed knife to relieve the venous congestion. The pedicle of the flap from the chest was clamped with a soft-bladed forceps for half an hour once or twice

daily for several days in order to develop the blood supply to the flap and on May 3, under local anesthesia, this pedicle was severed along the margin of the wound. There was much arterial bleeding from the pedicle. On May 10 the sutures of the flap to the nose having pulled loose, the nose was split so as to relieve tension and the right half was sutured to the flap.

On May 25 the pedicle of the frontal flap was divided and the flap was sutured along the upper margin of the wound. The raw surface left on the forehead was partly covered by returning the pedicle, which was unfolded and spread out, and partly by Thiersch grafts (Fig. 3).

Fig. 3.—Photograph of patient shown in the preceding figures, three months after the photograph shown in Fig. 2 was taken. The flap from the neck had been turned with the skin surface inward, and the flap from the forehead with the skin surface outward. The pedicles were severed after clamping them with soft forceps for a half-hour each day for about ten days.

The patient returned home for the summer and entered St. Elizabeth's Hospital again on November 10, 1920. Under ether the margin of the flap on the right side below the eye was freshened and sutured to the buccal mucosa and to the skin. The mucosa on the inner portion of the left half of the upper lip was dissected free at its upper part, forming a flap, and was turned down and the under surface of this portion of the lip was mobilized. The transplanted flap on the right side was incised, opened widely and sutured to the upper portion of the left half of the lip. A small strip of skin on the right flap was removed and the mucosa which had been dissected from the left lip was sutured on to this denuded area, so that the upper lip had a continuous surface of mucosa.

The ankylosis had not been completely relieved by the Esmarch operation, so one and one-half inches of the lower jaw were resected just in front of the angle of the jaw and a flap of fat and fascia was carried into the wound from the neck and fastened with tanned catgut sutures. The lower jaw was widely opened with a gag, which

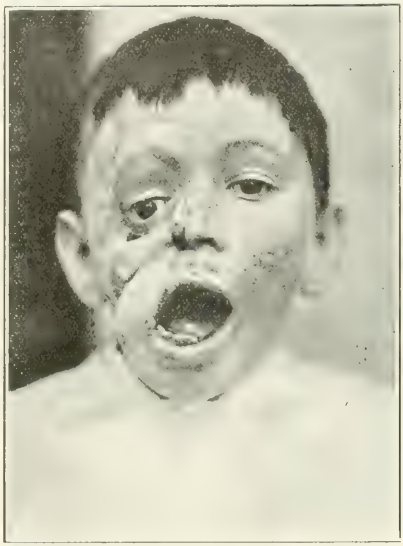


Fig. 4.—Photograph of patient shown in the preceding figures taken about nine months after the photograph shown in Fig. 1. The ankylosis was overcome by the resection of the bone. The lip was repaired by using the mucosa that extended on the left side of the lip up to the nose, the technic being similar to that of the Owen operation for harelip.' This photograph shows the extent to which the mouth can be opened, after having been firmly ankylosed for several months.

was left in position for several hours. The patient was instructed to open his mouth widely and was given a piece of wood wrapped with gauze to use constantly. He was very faithful in this and secured an excellent opening, as shown in the photograph, which was taken on December 6, 1920 (Fig. 4).

The result from this case has been quite gratifying and has reclaimed the boy from being a subject of distressing deformity. Formerly he

could not attend school because of the deformity and was forced to wear a large mask.

DISCUSSION

Dr. Isidore Cohn, New Orleans, La.—There are many principles to remember in plastic surgery. First, asepsis is all-important. If you have not a dry field you will get into trouble. There must be no tension on any of the suture lines. The pedicle graft of any type, whether the tube type or without the tube type, is certainly better than any graft we can apply. The fact that Dr. Horsley brought out, that we must not cut the pedicle too soon, is very important. If we cut it before the permanent blood supply has been established we are dealing with a free transplant. It is important to remember not to cut the flap in such a way that the possibilities of future contraction may cause a deformity of the orifice of the face, such as pulling down one side of the mouth or the nose, or causing the patient to have an ectropion or entropion, or what not. Gillis in his work has called attention to the very great value of the stent, which is a mould used to keep the face from sinking in. Dr. Horsley has avoided this by using the epithelial inlay graft. In plastic work you must use your imagination very freely. It will do more for you than any type of caliper.

Dr. W. A. Bryan, Nashville, Tenn.—I think every one of these cases should be forced to keep constantly with them a picture showing what they looked like originally.

Dr. Horsley made a statement that I think is universally believed, and that is that noma occurs only in children. That is in all the text books, probably without exception. It is very much like the old belief that if a tumor does not hurt it is not cancer. Finally we began to ask the patients who did have cancer and they said it did not hurt, and we began to find out that sometimes cancer does not hurt. Three or four years ago we had a man who developed a lesion of the face that exactly resembled noma, with a big slough. Whether it was noma or not I do not know. Certainly it was not in the sense of noma occurring in youngsters after acute infectious fever.

As Dr. Cohn said, if a man has not a great deal of imagination, or has not enough to figure his way out of one hole into another, and out of that into harelip, and then cut out of harelip into something else, he will not be successful in plastic surgery. One man asked me how I did a harelip operation. I told him you must do them as you find them. But you must avoid all tension, no matter what schemes you must resort to, because your sutures will cut out if you have tension. The other trick is that you must have your circulation equal to the maintenance of these tissues and if not you must establish it by the pedicle flap, the so-called tubulated flap. I think the word cord is better than tube. If we learn these things we shall have much better results.

Dr. C. W. Dixon, Douglas, Ark.—I wish to report a case of treatment in the active stage of the disease. It was in 1905 following an acute diarrhea, a few days after which we had an ulcerative condition of the entire alimentary canal and some slight hemorrhage from the bowel. In reading over all the authorities I could get on the subject they gave the treatment as recommended by Dr. Horsley, the actual cautery. By using the microscope I discovered the staphylococcus, streptococcus and pneumococcus and decided not to use the cautery, but to fight the micro-organisms present. For this purpose I used the anti-streptococcic serum as a local application and I obtained a complete recovery with no deformity whatever. I am sorry I have not a photograph of the lady to show you today.

Dr. A. L. Blesh, Oklahoma City, Okla.—In plastic surgery there are two main principles of tissue transplantation which can be followed successfully. The one may be called, for convenience, a direct transplant, the other an indirect transplant. In the former a pedicle is made and the transplant is slid directly into place with severence of the pedicle after the graft has "taken." After the pedicle is severed the tissue is molded into the desired shape. In the second, tissue is available from parts which cannot be directly brought to the place desired, but are brought indirectly, that is, by planting the graft into a movable part, like the arm, from where, after it has taken in the arm, it can be transplanted by severing the original pedicle.

This method makes available a large reserve of tissue which could not be otherwise utilized, and has the additional advantage of placing unsightly scars where they are not seen. Into this tissue may be grown cartilages before transplanting it, where this is necessary.

Dr. LeRoy Long, Oklahoma City, Okla.—I happen to have under treatment a patient with a defect similar to that reported by Dr. Horsley, but not quite so bad. The ala of the nose is not destroyed, nor are the bones affected so extensively as in his case.

I followed the plan of taking a flap containing the anterior branch of the superficial temporal artery from the forehead, turning it down just above the zygoma and fixing it into the defect with the skin surface on the inside of the mouth, after first having dissected the skin as well as possible at the upper and lower margins of the defect, tucking the edge of the flap under these margins and fixing with a few sutures.

A few days after the operation I was afraid the whole thing would break down, for the margin of the flap became dark and it smelled pretty bad. However, it lived, and now it is in good condition. We are down to the harelip stage and I hope for a good result.

In this case the nutrition depended practically altogether upon the direct blood supply to the flap through the anterior branch of the superficial temporal artery. In these cases the tissues are so thin above and below that it is impossible usually to get a contact broad enough to insure a blood supply in that way.

In the case of my patient there is complete ankylosis of the temporo-mandibular joint on the affected side, but I am deferring operation for the ankylosis until after the defect is repaired, upon the assumption that it would be a good

plan to leave that side of the face practically immobile while carrying out the steps for the repair.

I have been much interested in reading a recent report by Dr. Blair, of St. Louis, in which he suggests a unique method of preparing flaps so that they will acquire an independent blood supply.

Briefly, his plan is to outline the flap by incisions through the entire skin with the exception of the end farthest away from the defect, which is not divided. The flap is then dissected up from the underlying tissues, hemorrhage controlled, a few small rolls of rubber tissue placed across under the flap for drainage, a tape tied around the distal extremity so that it will partially obstruct the circulation at that point, and the margins sutured with interrupted stitches. The drainage tissue, which is used only to prevent a hematoma beneath the flap, is removed in about twenty-four hours. At the end of about a week to ten days the flap has acquired a fairly good independent blood supply, when the outer end may be divided, the sutures removed, the flap dissected again, and placed in the defect to be repaired. I am at this time carrying out the plan in the case of a patient who had a terrific deformity on the front of the neck and face as the result of a burn, the chin being drawn down by scar tissue so that it was attached to the tissues over the sternum. In this case the flaps extended out over the shoulders on either side. After the scar tissue was dissected away as much as could be safely, the flaps were brought up from either side, they being rotated one-half turn at their bases, and sutured together in the mid-line of the neck. Other sutures were used along the lateral margins. So far, the plan is working out well and I am much interested in the procedure.

Relative to the age at which noma develops, I wish to report a case in an adult of about 25. It was a very extensive gangrene of the face, involving practically all of the tissues on one side, and even the contents of the orbital cavity.

I may state that the patient who had the scar tissue about the neck tells me that she carries with her a picture showing how she looked before any effort to relieve the deformity, and she says that when she gets blue about how she looks now she takes out the picture and then feels perfectly satisfied.

Dr. Horsley (*closing*).—Dr. Cohn and Dr. Bryan have emphasized a very important point in avoiding tension and securing a good blood supply. In plastic surgery of the mouth there is the additional reason that these cases are not sealed from infection as elsewhere and are dependent upon gentle handling rather than dressings for resistance to infection.

Regarding the occurrence of noma in childhood, I took that from text books and really know nothing about it. I gave it to you as it was given to me. I think it follows infectious diseases in children and see no reason why it should not occur in adults in the same way.

Regarding the flap Dr. Long has spoken of, I use the same principle. I dissect up a flap a little at a time and then clamp the pedicle at intervals until the nutrition from the new location is fully established.

ECLAMPSIA AND PRE-ECLAMPTIC CONDITIONS*

By George H. Lee, M.D.,
Galveston, Tex.

There is no more important nor interesting subject for the general practitioner and for the obstetrician than those various toxemias in the pregnant and parturient woman which precede and too often result in eclampsia. And there is no domain in which there is such a vast literature with so much that lacks definite conclusion. The frequency of occurrence, the nature of these conditions, their grouping and classification, the etiology, the prognosis and the treatment as dealt with in the writings of numerous authors develop a wide variation in observation, conclusions and statistics. A review of the field, though limited and unsatisfactory, may be instructive.

In certain Southern clinics the incidence of these conditions in proportion to the number of cases of deliveries, when compared with the statistics of Northern and foreign clinics, is surprisingly large. At the John Sealy Hospital, in Galveston, if we include only cases of convulsions, there have been a little more than 5 per cent of cases of eclampsia among the deliveries during the years 1918, 1919 and 1920.

E. Boyer Young[1] gives the statistics for the Boston City Hospital covering a number of years, and while the incidence varied markedly, it never at any time was quite 1.5 per cent.

Major Hingston[2] reviewed the cases at the Government Hospital, Madras, India, from October, 1917, to October, 1919, and placed the ratio at 1.3 per cent.

Stroganoff, with an immense clinic, estimated from an extensive experience a proportion of 2 per cent. Veit, from large statistics in Germany, showed 0.6 per cent. In Tarnier's Clinic, Paris, the incidence was demonstrated to vary markedly in different years, the highest ratio 0.5 per cent.

*Read in Section on Obstetrics, Southern Medical Association, Fifteenth Annual Meeting, Hot Springs, Ark., Nov. 14-17, 1921.

Any explanation of the excessive frequency in the John Sealy Hospital cases will prove unsatisfactory. The clinic is small and is drawn largely from negroes. The patients are admitted in eclampsia, in practically every case, and have had no prenatal care. It is probable that if the clinic served a larger proportion of the women of the city, there would be such increase of normal cases as would readjust the percentage of toxemias. An earnest effort is now being made to see that the class from which the eclamptics are drawn have the proper prenatal care. Some satisfaction is found in the fact that the cases of pre-eclamptic toxemia received in the hospital and treated in 1920 all escaped eclampsia, a result which of course was due in part to the element of chance.

In studying the nature and grouping of these toxemias it would seem that the segregation of the "nephritic toxemias" is clearly a step forward. These conditions are primarily a uremia due to failing kidneys, and occur during pregnancy and labor in women who have had previous trouble that involved the kidneys or who develop a primary nephritis during pregnancy. Clinically, these conditions are characterized by a more or less gradual onset, headaches, edema, retinitis and retinal hemorrhages, coma, convulsions. Urinalysis develops a more or less subacute or chronic nephritis.

Blood chemistry,[3] according to Killian and Sherwin, shows a markedly increased non-protein nitrogen and urea nitrogen and the percentage of urea nitrogen to non-protein nitrogen and an increased uric acid and creatinin resembling the findings in nephritics. The uremia is difficult to influence by treatment. The fetus frequently perishes *in utero* from uremia and placental infarcts, so that there is less justification for temporizing in the treatment out of consideration for the life of the child. The patient often aborts or miscarries. If the pregnancy does not quickly terminate, coma and convulsions frequently result, and often death. The blood pressure shows high systolic and diastolic readings. After delivery improvement is rather retarded and postpartal coma or convulsions are often fatal. The nephritis clears very slowly and incompletely and the uremia will recur in succeeding pregnancies.

The diagnosis is not always clear and definite. It must be made from the history, clinical symptoms, urinalysis, and cannot at the present time be safely made by blood chemistry.

Those toxemias in the pregnant and parturient woman which precede or result in eclampsia, aside from those properly classified as "nephritic toxemias," are usually grouped under the term "hepato-toxemias" since the most constant and characteristic pathology in these conditions is found in the liver. In this group must be included a number of conditions more or less distinctly different with only a few things in common.

Many cases begin suddenly. The patient may have been under close observation and have received the proper prenatal care, urinalysis made a day or so before may have shown nothing abnormal, when a severe headache, dizziness, a sharp epigastric pain or a convulsion develops. Then a urinalysis will show an acute nephritis. The blood pressure will be high. There is at times an elevated temperature. The patient may respond to treatment and her condition return after a few days to normal. She may go to term and be delivered of a live child. On the other hand, she may improve satisfactorily for a time and then go into eclampsia and die. If recovery should occur, there will have developed in some patients a certain immunity against a similar toxemia in future pregnancies. Nearly all such toxemic attacks occur in primipara and this question of immunity is of first importance.

Whence comes the immunity? R. S. Hill[4] answers the question by emphasizing the fact that eclampsia develops most frequently in primipara, and he explains the immunity as the result of the development in the first pregnancy of the reserve forces in the pregnant woman. However, immunity, as we understand it, ordinarily develops as the result of an acute infection, and this is not the only respect in which such cases of pre-eclamptic toxemia and eclampsia simulate acute infections.

Other toxemic conditions in the pregnant woman differ markedly from the above. Clinically an acute nephritis is usually present. And yet quite a large number of eclampsias have been recorded in which evidence of the presence of nephritis was absent. Champetier[5] recorded 143; Ingelow, 113; Schroeder, 62; total, 317 cases of eclampsia with no albuminuria. Cragin has reported two patients with no albumin, and 51 with no casts in the urine. At autopsy in some of these cases a nephritis has been demonstrated.

In many patients the symptoms are of more gradual onset. The laboratory findings indicate errors and disturbances of metabolism very little understood. The symptoms vary markedly. Blood chemistry will show increased non-protein nitrogen with sometimes a decreased, and again an increased, urea nitrogen, the percentage of urea nitrogen to non-protein nitrogen usually decreased, a high uric acid content, and in severe cases an increased creatinin.

In many cases the symptoms are largely mental, a stupor, indifference, sometimes mild delirium, then active delirium or convulsions.

The blood pressure is usually high, and probably the safest indication that the convulsions are under control is a systolic below 120 mm. Yet convulsions occur at times when the systolic is below 120 mm.

These are only a part of the varying conditions which are met with clinically and yet are enough to illustrate the immense variety which is included in the group of hepato-toxemias. As has been previously suggested,[6] these are all toxic conditions of some character and are all connected with the pregnant state, and therefore have these two things in common.

The following abridged histories of four patients treated in the John Sealy Hospital during the fall of 1920 and early months of 1921 are included as illustrative in a limited way:

Case 2481.—Mrs. H. S., age 36, para I, was admitted October 26, 1920, in about the eighth month of pregnancy. She had been well until the night before and had attended to her usual household duties. She retired with a headache. A convulsion took place at 2 a. m. at her home in the country. Morphin gr. ½ was given hypodermically when seen by her physician shortly afterward. Convulsions occurred again at 3:30, 4:30 and 6 a. m. Morphin gr. ¼ was administered at 5 a. m. She was taken to the John Sealy Hospital in an ambulance at 9:30 a. m., absolutely comatose, with respirations 18, her face blue, blood pressure, systolic 210, diastolic 110. Twelve ounces of urine were in the bladder; there was much albumin and many hyaline and granular casts. No fetal heart sound was made out. The vulva and vagina were small and the cervix was undilated.

Cesarean section was performed at 10:25 a. m. There was a moderate hemorrhage. The baby was delivered in asphyxia pallida and was lost. Blood pressure at 11 a. m., S-140, D-70. Active eliminative treatment. Blood pressure at 1:15 p. m., S-200, D-110. Preparation to do venesection; convulsion and death.

Case 2551.—B. G., colored, age 23, para I. Admitted to John Sealy Hospital November 3, 1920, with pulseless cord in vulva after repeated efforts to deliver with forceps outside and several convulsions before admission. Comatose when admitted. Delivery immediately after admission by crushing head with cephalotribe. Delivery completed at 9:50 a. m. Blood pressure, S-129, D-75, pulse 156. Much exhausted. Urine catheterized small amount, heavy ring of albumin, few hyaline casts.

12:55 p. m., pulse 142, temperature 100.2 (R), blood pressure, S-80, D-42. Stimulated freely. Hypodermoclysis, hot water bottles, strychnia and camphor. One ounce urine withdrawn per catheter. 5:10 p. m., pulse 150, temperature 100, blood pressure, S-117, D-70. Condition improved.

8 p. m., pulse 150, blood pressure, S-142, D-85. Hot pack; purgative given.

11 p. m., pulse 130, temperature 102.2, blood pressure, S-145, D-75. Venesection 400 c. c. Hypodermoclysis normal salt solution two pints. Convulsion and death at 2:30 a. m.

Case 3111.—Mrs. C. C., age 24, para I, was admitted December 27, 1920, at 11 a. m. and was delivered at 11:55 normally. Blood pressure was 122 systolic and 80 diastolic. The patient was rather stupid and heavy mentally. The usual treatment was instituted following delivery. Several convulsions occurred during the night. The tongue was badly lacerated in the early morning.

6 a. m., December 28, convulsion; blood pressure, S-120, D-70. Pulse 84, temperature 99. Urine in bladder drawn by catheter, 455 c. c., .182 gm. of albumin in the urine drawn, occasional pus casts. Blood urea, 5.5 mg. per 100 c. c.

Treatment: morphin for convulsions and active elimination. No other convulsion after December 28. Partly comatose December 30. Discharged January 14, 1921, recovered.

Case 3170.—L. R., colored, age 18, para I. Admitted January 5, 1921. Convulsion at 2 a. m. on the 5th. One hour later delivered with forceps. Seven convulsions before entering hospital at 7:30 a. m., unconscious. Blood pressure,

S-152, D-80. Urine: albumin heavy, many fine and coarse granular casts.

Convulsions at 11:30, 12:00, 12:45 and 1:20. Blood pressure at 12:45, S-128, D-82. Temperature 101°, pulse 120, after morph. gr. ¼ and hot pack.

5 p. m., blood pressure, S-148, D-80. Veratrum viride tinct. m. x, three doses hypodermatically.

8:55 p. m., blood pressure, S-128, D-92. Pulse 118, temperature 101°. Elimination pushed actively.

No other convulsion; recovered. Discharged January 25, 1921. On January 11, urinalysis showed specific gravity 1012, no casts, slight trace albumin.

None of these cases had any prenatal care. Careful inquiry into the history of each case failed to develop any toxemia preceding the convulsions more than a few hours.

The etiology is obscure and unsettled. As Wm. M. Brown[6] sums up, there are two principles that can be accepted.

(1) These patients suffer from a poison in the blood.

(2) The character of that poison is unknown (and it might be added as is also its source), but it depends on the pregnant state.

The experiments of Isei Obata[7] "On the Nature of Eclampsia" are interesting. He produced in mice convulsions simulating eclampsia and death by the injection of prepared extract of placenta. And then he showed that the serum of normal women and men, if mixed with the placental extract, rendered these inoccuous and non-poisonous, evidently neutralized the poisons. He showed further that the serum of eclamptic women had a very much reduced neutralizing power. Based upon these experiments, W. Blair Bell[8] transfused a patient in severe post-partal eclampsia with prompt success and suggests the preparation of human antitoxin serum for eclampsia.

J. F. D. Hunter[9] refers to the fact that the choroid plexus is a secreting structure which usually protects the spinal fluid from toxins; that the thyroid has a stimulating influence upon the choroid plexus, and hence the improvement in those cases of hypothyroidism in pre-eclamptics or eclamptics following the administration of thyroid extracts or derivatives. From this suggestion comes an explanation of the good effects following spinal puncture, since in several of the reported cases the spinal fluid has been found not under increased pressure and not a great deal of the fluid was withdrawn; but improvement followed.

That the involvement of the kidneys is secondary, that the most characteristic and constant pathology is found in the liver, giving rise to the tendency to speak of these conditions as the hepato-toxemias as contrasted with the nephritic toxemias; and that the lesions in the liver and probably in the kidneys are due to some unknown poison in the blood are views which now meet with general acceptance.

Pathology.—The most constant pathology in these cases is found in the liver, a thrombosis of the portal veins and of the veins in the perilobular spaces with, in some cases, degeneration of the cells toward the center of the lobules.

The changes in the kidney, present in most of the autopsies, are degeneration of the cells of the convoluted tubules with a marked hyperemia and swelling of the kidney. The degeneration of the cells is not so constant nor so marked as might be expected from the urinalysis and the diminished secretion of the urine. This fact accounts for the rapidity with which the situation clears up and the urine returns to normal in the larger percentage of these cases.

There are pathological changes also in the heart muscle and in various other organs of the body; but these changes are not so constant or characteristic as the conditions that are found in the liver.

Prognosis.—The prognosis for mother and child is always serious. In eclampsia the maternal mortality varies from the 4 per cent of Veit and 5 per cent to 6.5 per cent of Stroganoff (in a large series of cases) to 8.6 per cent reported by McPherson[10] at the New York Lying-In Hospital in a comparatively small number to 12 per cent and 17 per cent up to 20 per cent and 25 per cent in other clinics. For the child the ratio of fatality is from 20 per cent to 50 per cent and is even larger in the nephritic toxemias. Such results emphasize the importance of the prophylactic treatment of these conditions, which includes the guarding against, as well as the early prompt recognition of, pre-eclamptic toxic states and their prompt and appropriate management.

Shall the patient be permitted to again become pregnant? Will there be a recurrence of the toxemia in such event? These are questions of importance. The answer must depend upon the absence of any possible previous nephritis, the history of the onset, the prompt clearing up of the urine and return of blood pressure to normal, and the complete disappearance of the clinical and eye symptoms. If the blood has shown no marked increase of uric acid or creatinin, this should be regarded favorably.

Treatment. — The pregnant woman should be under the care of her medical attendant practically from the beginning of pregnancy. In the early months the physiological vomiting of pregnancy often becomes pathological, i. e., the pernicious vomiting, and if the patient is not under the watchful care of a competent obstetrician that condition may be often neglected until the situation is very serious. The obstetrician should see the patient early in pregnancy and carefully inquire into her history and general health, especially with reference to previous disease that might have involved the kidneys. He should ascertain what the patient's habits are as to diet, exercise, clothing, sleep, etc., and should make only such changes as seem to be necessary. He should, without alarming the patient or rendering her uneasy, impress upon her and those who are closest to her the importance of keeping in touch with him, of reporting to him promptly any edema, dizziness, vertigo, spots before the eyes, headache, nausea or vomiting, or other deviation from the normal. He should insist that it will be safer to communicate with him many times unnecessarily than to miss doing so one time when there is reason to do so.

He should have a morning specimen of urine sent to his office for analysis at least every two weeks up to the sixth month of pregnancy and then every week until delivery. These specimens should have careful chemical and microscopical analysis and the reports kept on file.

He should see his patient at least every three or four weeks up to the sixth month and from then on every two weeks. The patient's blood pressure should be taken each time and a careful record kept. About the thirty-fourth week he should make a careful physical examination, including measurement externally and internally of the pelvis, and diagnosis of the presentation and position, with location of fetal heart sound.

In the matter of diet and other points in prophylactic treatment, A. Laphorn Smith[11] has written an excellent summary in the *British Medical Journal.*

The diet of the pregnant woman should be liberal and generous, but should not include red meats and should include limited amounts of fish and fowl. Eggs should be taken in moderation, vegetables, fruits, milk and, until the last two months, cereals freely. Sweets and pastries should be avoided, as should highly seasoned dishes which are apt to disagree.

She should be encouraged to take regular exercise, much of it in the open air, of any character that is not strenuous and does not expose her to being jolted or shocked, but should be warned carefully against excessive exercise at any time.

Her clothing should be at all times sufficiently warm, always loose, never carried about the waist, but always from the shoulders. She should be encouraged to dress so that her enlarged figure will not be noticeable with the idea that she will be more willing to go about in the usual way and thus have the proper exercise and diversions. She should not wear any kind of a corset nor any make of maternity corset at any time. If the muscles of her shoulders, chest, back and limbs need to be exercised to be kept in good condition, how much more important is it that the muscles of her abdomen, which must assist her in the propulsive stage of labor and which she wishes to involute properly after delivery, should have the proper development and should not be supported and held in check by a maternity corset! Moreover, if pyelitis is induced in pregnancy by the pressure on the ureters of the gravid uterus, why should this be added to by the tight lacing of a maternity corset?

The patient's bowels should be looked after to see that these are moved once or twice efficiently each twenty-four hours.

This can usually be accomplished by diet, or if not, by the use of cascara at night or occasionally a mercurial purgative, supplemented as necessary by an aperient water.

She should sleep at least eight hours each night and if that amount is missed should make it up by a nap in the day.

Her surroundings should at all times be cheerful and hopeful, an atmosphere of confidence and encouragement.

If symptoms of toxemia develop, edema, headache, nephritis or elevated blood pressure, her diet should be limited to milk in not excessive quantities. She should rest preferably in bed. Her bowels should be thoroughly moved. Some objection has been urged to a milk diet as too rich in protein and a diet of glucose solution 5 per cent has been suggested. The situation should be watched carefully with frequent urinalyses and quantitative estimate of urine and frequent observations as to blood pressure. The skin and kidneys should be carefully looked after.

If the condition should not improve, but grow worse, it is apt to be more grave if before the sixth month. Usually the toxemia makes its appearance nearer to term.

The situation demands the careful handling that is due to the grave prognosis, and to the clear recognition that the toxemia is from an unknown poison resulting from the pregnant state.

For the relief of severe headache or epigastric pain no remedy has met with more general approval than morphin hypodermatically in ¼ to ½ gr. doses. That this agent does not interfere with diuresis, but really promotes it, has been fairly proven. It does interfere to a certain extent with the action of purgatives and this must be considered. Atropin is at least theoretically contraindicated.

For high blood pressure venesection with the withdrawal of from 500 to 750 c. c. of blood is probably most relied upon. Major Hingston[2] advocates venesection if systolic is below 120 mm. and reduces the blood pressure to 100 mm. or lower. He withdraws up to 1000 c. c. and repeats if necessary. If condition should be so acute as to justify the withdrawal of such large quantities of blood, the suggestion derived from Obata's experiments on mice of the neutralizing effect of the serum of normal women and men should be utilized and a transfusion done.

Not only the systolic but the diastolic reading of the blood pressure and the pulse pressure should receive careful consideration. A diastolic of 100 or over indicates severe toxemia and predicts eclampsia. A low pulse pressure contraindicates any cardiac depressant and calls for venesection.

Should the nephritis continue, the blood pressure still be high, or the other clinical symptoms persist, the pregnancy should be terminated.

In a primipara near term with marked toxemia, urgent symptoms, no cervical dilatation and an undilated vagina and outlet, the safer method is cesarean section. Especially does this apply where eclampsia and coma with high blood pressure and profound toxemia are present. If the situation will permit, labor should be induced by the use of a Barnes bag and the patient carefully assisted in the second stage under ether. *Accouchement force* should be avoided except in very exceptional cases. Vaginal cesarean section is applicable in appropriate cases. Many of these cases are very seriously complicated by methods of delivery which involve much handling and traumatism of the parturient canal. Those methods which follow the practice of Stroganoff, who gave morphin gr. ¼ to grs. ½ followed with chloral by enema, or of McPherson, who gives morphin gr. ss. and follows by additional doses of gr. ¼ if necessary to control the convulsion, places the patient in a darkened room and waits for her to deliver herself, limiting assistance to the last stages, have given best results.

In the multipara especially, if in labor, other methods of delivery via the parturient canal are applicable. For the control of the convulsions and to lower blood pressure, veratrum viride and veratrone are used by certain authorities; but not so generally as venesection.

Glonoin in full doses frequently repeated acts very promptly to lower the blood pressure in many cases, but the effect is transient.

A systolic blood pressure below 120 mm. with corresponding diastolic is probably the best assurance that the convulsions are under control and yet not absolute, as we have seen patients in eclamptic seizures with a lower register. A lowered blood pressure is also of importance as guarding against apoplexy, which so often contributes to the fatal results.

The hypodermoclysis and the intravenous use of the normal salt solution after venesection is advocated by many obstetricians, and objected to by some.

Transfusion, in the light of Obata's teaching, should be given a more extended trial. Its use is certainly well founded.

Spinal puncture has been used with favorable results by several operators[12] [13] [14] and deserves to be more frequently tried. We used this procedure two or three times several years ago and were not able to see any result; but I am satisfied we abandoned it too quickly.

The bromids and chloral in full doses by mouth or by enemata are of service in controlling the convulsions.

Ether is the anesthetic of choice for operative procedures, chloroform being avoided because of the similarity in the pathology met with in delayed chloroform poisoning and that in eclampsia.

In edema of the lungs Major Hingston[2] reports the successful use of adrenalin 0.5 c. c. hypodermatically every four hours.

Decapsulation of both kidneys in postpartal eclampsia with profound toxemia followed by recovery was reported in the *British Medical Journal*.[15]

In every case of pre-eclamptic toxemia and of eclampsia, elimination by the bowels, skin and kidneys should be pushed from the beginning. In several clinics much stress is laid on colonic irrigation, this being carried on sometimes more or less continuously until improvement is definite. The bowels should be moved promptly and freely. The skin should be stimulated to action by hot air baths and hot packs; the kidneys by the free administration of fluids and alkaline diuretics.

The high temperature sometimes present is usually reduced by venesection or may be controlled by enemas of ice water.

There are a number of authorities in obstetrics who believe that any case of pre-eclamptic toxemia, if taken sufficiently early and appropriately treated, can be managed to prevent eclampsia.

It is important to recognize that every case of eclampsia demands the most prompt, efficient and energetic treatment which must at the same time be tempered with the wisest care and conservatism in the process of terminating the pregnancy. And after delivery the patient's condition demands the utmost skill and nicest management if the desired result, a perfect recovery without evidence of kidney impairment, is to be accomplished.

BIBLIOGRAPHY

(1) Young, E. Boyer: Eclampsia in Boston City Hospital. Boston Medical and Surgical Journal.
(2) Hingston, Major C. A. F.: Report of 64 Cases of Eclampsia Treated at the Government Maternity Hospital, Madras, October, 1917, to October, 1919. Indian Medical Gazette, January, 1920.
(3) Killian and Sherwin: American Journal Obstetrics and Gynecology, July, 1921.
(4) Hirl, R. S. New York Medical Journal, July, 1917.
(5) Dorland, W. A. Newman: The Kidney in Eclampsia. Medical Record, April 7, 1917.
(6) Brown, Wm. M.: American Journal Obstetrics, February, 1916.
(7) Obata, Isei: On the Nature of Eclampsia. Journal Immunology, May, 1919.
(8) Bell, W. Blair: The Treatment of Eclampsia by Transfusion of Blood. British Medical Journal, May 8, 1920.
(9) Hunter, J. F. D.: The Path of the Eclamptic Toxin. British Medical Journal, April 9, 1920.
(10) McPherson, Ross: Bulletin Lying-In Hospital.
(11) Smith, A. Lapthorn: Eclampsia: Its Prevention and Treatment. British Medical Journal, July 26, 1919.
(12) Wilson, W. T.: Lumbar Puncture for the Relief of Convulsions in Puerperal Eclampsia. Journal American Medical Association, September 2, 1916.
(13) McLeish, John: Lumbar Puncture in Eclampsia. British Medical Journal, January 25, 1919.
(14) Snyder, J. W.: Eclampsia and Lumbar Puncture. Journal American Medical Association, September 29, 1917.
(15) Cardwell, Mary G.: British Medical Journal, May 24, 1919.

DISCUSSION

Dr. Calvin R. Hannah, Dallas, Tex.—The treatment for eclampsia lies in prevention. Most often the source of trouble is in the intestinal tract. The patient who is improperly dieted and not eliminating is the patient who succumbs to eclampsia. Every patient should be thoroughly instructed and taught the significance of the pre-eclamptic symptoms. She should know that if one or many of these symptoms are manifested she at once must limit her diet, go to bed if necessary and eliminate through the intestinal and urinary tracts. It is the obstetrician's negligence if a woman under his supervision has eclampsia.

I should like for Dr. Lee to say when he thinks cesarean section is indicated in eclampsia.

Dr. Chas. B. Reed, Chicago, Ill.—I was impressed by the unusually large percentage of cases which the Doctor has had to contend with

in his service, about two or three times what we expect in Chicago.

I was glad to hear the essayist emphasize the importance of separating nephritic eclampsias from other forms. This is highly necessary. Unhappily while the nephritic forms are readily recognized by urinary symptoms and with blood and urine chemistry, the other forms are by no means easy and we are often caught in a trap when we least expect it.

The position taken by the doctor in regard to the value of blood examinations and urinary findings cannot be too highly applauded. It is probable, however, as we learn more about endocrinology that we shall run across more than one toxin which has a potential etiological value. The system of prenatal care outlined by the essayist is the best we know.

There are three things I should like to note in this paper.

First, I believe the Doctor's objection to the use of chloroform anywhere or at any time in eclampsia cases is well founded.

Second, I would suggest the use of the Vorhees bag (No. 1) in place of the Barnes bag for the induction of labor. It is easier to use, more efficient in action and less likely to slip out or fail to inaugurate pains.

Third, we have all been accustomed to use normal saline for hypodermoclysis, and as a "blood washer." Normal saline is a hemoglobin destroyer and in its place I suggest the use of a 15 per cent aqueous solution of glucose such as our men used in shock cases during the last war.

It is uninjurious and the technic for intravenous use is easily arranged. It is a liver cell builder and this as the Doctor has shown is an asset of extraordinary value.

Dr. John C. Altman, Nashville, Tenn.—I wish to stress the termination of pregnancy in all cases that do not respond readily to treatment, before the onset of convulsions. The method should be adopted that produces the least amount of trauma or shock. I prefer the method of Krause or the rubber bags. Another point is to sound a warning against the present day tendency to a promiscuous cesarean section in puerperal eclampsia. It has its field in properly selected cases, but that field is limited.

Dr. John A. Hatchett, Oklahoma City, Okla.—It would doubtless be a matter of interest to many of us to know how quickly the toxemia producing eclampsia can come up in the patient. Generally it is manifested for days or weeks by well-defined symptoms. Rarely we seem to meet patients with a fit as the first sign of illness, with whom close investigation fails to elicit any prior symptoms. I had a patient some years ago who to all appearance was happy, bright and well until ten at night she was taken with convulsions and was delivered early the next morning.

This was in the days when prenatal care was almost unknown. Had she been examined closely prior to this tragic attack it seems reasonable to think the cause would have been apparent.

Dr. W. A. Fowler, Oklahoma City, Okla.—The etiology of eclampsia as has been suggested, is still shrouded in obscurity. In thinking of the etiology we ought to keep in mind an important clinical fact, viz., the almost constant association of focal infections with these conditions. Especially do peridental infections seem to be frequent. The added burden upon the liver and kidneys as a result of infectious processes about the teeth, tonsils, etc., seems to be the deciding factor in determining the break down in liver and kidney functions which is characteristic of these cases.

As to diagnosis, I believe that the blood pressure offers us the most valuable single sign. The findings at the State University Hospital agree with those of Dr. Lee with respect to the blood chemistry, the increase in the non-protein nitrogen being out of proportion to the urea-nitrogen and being only moderate except in nephritic cases.

In our routine treatment we undertake to control the convulsions, promote elimination and treat the symptoms. Fluids are pushed by means of colonic irrigations and by mouth if the patient will swallow, only to the point that is consistent with the response being obtained from the kidneys and skin. If the skin is dry and the kidneys secreting only a very small amount of urine it is better to limit the intake of fluids and resort to sweating. In these cases there is edema of the kidneys, and pushing the fluids without regard to this condition only makes it worse. In the beginning of our treatment we wash out the stomach with soda solution and introduce through the tube before it is withdrawn two ounces of castor oil, one drop of crotin oil, a dram of sodium bicarbonate and 40 grains of bromid. Veratrum is usually considered a heart depressant and caution should be exercised in its use. Chloroform should not be used, as it tends to exaggerate pathology in the liver, which is the cause of danger to the mother's life.

As to operative interference, if our patient can be made to improve by these conservative measures it would be folly to subject her to the shock of operative delivery at a time when she is a poor surgical risk. But if, in spite of our most particular care, she ceases to improve or gradually becomes worse, it is better to terminate the pregnancy and accept at once the inevitable shock of the delivery. It is well to remember that usually in these cases natural dilatation takes place rapidly and if time will permit natural delivery offers much less shock than operative delivery. The importance of emptying the uterus is perhaps frequently over-estimated. It should be remembered that from twenty to twenty-five per cent of cases of eclampsia occur after delivery. While pregnancy is the essential cause it is not the sole cause. Operative termination of pregnancy does not terminate the pathology which is the cause of death in these cases, but for the time being exaggerates it.

I cannot agree with the wisdom of bleeding patients with a blood pressure as low as 120. The systolic pressure should be 175 or more before phlebotomy is resorted to.

Dr. Otto H. Schwarz, St. Louis, Mo.—We have been seeing fewer cases of eclampsia during the

last few years than, perhaps, at any previous time. This is due, undoubtedly, to the great advances that have been made in pre-natal care. It has been particularly striking that in the private patients there has been a definite rarety of eclampsia. The cases which we do not see are, in most instances, cases that have not been observed previously.

Dr. Lee stated that the lesion of eclampsia was similar to that produced by chloroform. I wish to call attention to the fact that the lesion in eclampsia is in the periphery of the liver lobule, whereas the lesion due to chloroform occupies the center. The chief danger then, in the use of chloroform, lies in the fact that if it is used extensively in these cases it will injure that portion of the liver which is as yet undamaged and, therefore, the entire liver would become involved. The question of transfusion as suggested first by Blair Bell is very interesting. I feel that if there is any particular value in transfusion it would be of more value in cases of so-called pre-eclampsia rather than at the time of delivery or during convulsions.

Dr. V. B. Cozby, Grand Saline, Tex.—I have found nothing better than morphin to control convulsions. The method that I have often seen of administering chloroform during the convulsions, is ridiculous, because the patient does not inhale during the convulsive seizure.

If the fetus or placenta plays any part in the etiology, how do you account for the post-partum cases which amount to 20% of all cases?

In post-partum cases with high blood pressure the withdrawal of a pint or more of blood, is the best thing we can do for the patient.

I have seen patients almost purged to death by an overzealous physician "trying to keep up secretions." Give some purgative, to be sure, but do not over purge.

Dr. A. P. Dowden, Eminence, Ky.—The pregnant woman should be better educated as to placing herself under the care of her physician at the beginning of pregnancy.

I have gotten good results with hyoscin, morphin and codeine tablets hypodermically, and sub. culiod lobelia. I strive for rapid and thorough elimination, and absolute quiet. I have never had any trouble from using chloroform in these cases.

Dr. W. H. Joyner, East Bernstadt, Ky.—In a case of puerperal eclampsia in my practice some distance from the office, I saw a post-partum, a primiparous woman about 18 years old weighing about 120 pounds. The only available drug was morphin sulphate. I gave her one and one-half grains hypodermatically. During a period of three hours her delirium was so great, in the beginning, that between convulsions she had to be held in bed and forced to take the hypodermic. The morphin had the desired effect and she made a complete and uninterrupted recovery without any ill effect so far as I was able to note.

Dr. Elizabeth C. Kane, Memphis, Tenn.—Papers such as Dr. Lee's serve to impress us more fully with the need of pre-natal care, and the stitch in time. Patients should have it carefully explained to them the need of regular visits during the whole of pregnancy, not just the last month or two. I remember in my old time City Hospital service, numbers of cases came in desperately ill, usually fatally. None had had care. I insist that my private patients report regularly. If they will not, I appeal to their husbands, or, as they say, "Hound them to death." I now have eclamptic conditions very rarely. This care has also greatly reduced the number of difficult deliveries. I urge them to walk.

Dr. Lee (closing).—Replying to Dr. Hannah, cesarean section is indicated in eclampsia in profound toxemias where delivery by the parturient canal would subject the patient to prolonged operation and marked traumatism; this without regard to whether the child is alive or not. If the child is alive, so much the better reason. In the case I referred to, the patient was an elderly primipara with a very high blood pressure and repeated convulsions, comatose between convulsions, in an attack which had come on without warning and was accompanied by evidence of marked involvement of the kidneys. The cervix was not effaced, the vagina and vulva undilated. The situation demanded prompt delivery, which could only be effected by cesarean section. In reviewing this case, my regret is that we did not watch the patient more closely and bleed more heroically before the recurrence of the convulsions.

I agree with the statement that promiscuous cesarean section is to be condemned; but in such situations the mother deserves every consideration and every chance for her life and there can be no disputing the fact that the cesarean section under such circumstances is distinctly to her advantage, especially in cases where there is no reason to suspect infection from frequent examination.

I think Dr. Reed's suggestion with reference to the use of the glucose solution instead of the normal salt solution is a valuable one and in line with modern teaching. There may be some objection to the use of the normal salt solution. In my judgment there can be none to the use of the glucose solution. I have been in the habit of using the 5 per cent solution.

For the control of convulsions I do not believe there are any measures equal to the two, hypodermic injection of morphin and bleeding; and I believe that the latter should be used until the blood pressure drops to the neighborhood of 100. In addition to these two, the other measure which I regard as most valuable is the transfusion of blood from an acceptable donor. The latter is probably the most positive of all these remedies and ought to be used very much more frequently than it is. In view of the fact that indirect transfusion is done at the present time with so much ease, this measure should be utilized whenever indicated.

I agree heartily with those speakers who insist that the proper time to treat eclampsia is before it occurs, which means that the important part of treatment of this condition in a pregnant woman consists in the prenatal care which every woman should have. I believe that an increased

effort in this connection will certainly result in a very marked diminution of the toxemias of pregnancy. At the same time, I am not able to accept the statement that every case of eclampsia could be eliminated by prenatal care. If our methods were more perfect, a development which we should continually strive for but have not attained, we might hope to attain this result. At the present time we are justified and are imperatively called upon to direct our attention to the proper prenatal care of the pregnant woman, and I am sure that the result will be encouraging.

THE MORE COMMON CAUSES OF CHRONIC URINARY OBSTRUCTION IN MALE CHILDREN*†

By W. A. Frontz, M.D.,
Associate in Clinical Urology, Johns Hopkins University; Urologist in Charge the Johns Hopkins Hospital Dispensary,
Baltimore, Md.

It is not a matter of common knowledge, either to the average urologist or to the general practitioner, that chronic urinary obstruction with residual urine occurs not infrequently in male children. Unless these obstructions are recognized early and relieved promptly, serious damage to the upper urinary tract will result. The vast majority of serious obstructions are due to the presence of congenital valves in the posterior urethra or to a nerve lesion resulting from spina bifida. It is not the purpose of this paper to consider the group of acquired urethral strictures of traumatic or inflammatory origin.

CONGENITAL VALVES OF THE URETHRA

Within the past nine years there have been admitted to the Johns Hopkins Hospital 15 cases‡ in which a diagnosis of urinary obstruction resulting from congenital urethral valves has been made.

Age.—Analysis of these cases shows that the majority come under observation during infancy or early childhood. Thus of the 15 cases comprising the series, 3 were under one year; 4, between one to two years; 1, between two to five years; 4, between five to twelve years; 1, between twelve to twenty years; 2, between twenty to forty-five years, making a total of 12 under twelve years of age as against 3 above that age. The youngest case in the series was eleven days old, while the eldest was forty-two years.

The degree of obstruction from congenital valves varies considerably. In certain cases the obstruction is so complete that death occurs in the first few weeks of life. Other cases having lesser grades of obstruction may reach adult life with comparatively few symptoms.

Pathology.—It seems fitting in this connection to consider first the types of congenital obstruction of the posterior urethra. In 5 of our cases a study of the anomaly was made post-mortem, while in 10 others the condition was recognized during life, although in only 3 of these cases was any accurate information obtained regarding the exact type of the obstruction by instrumental examination. A study of the cases reported in the literature proves quite definitely that three general types of valve formations exist.

Type I.—In the most common type there is a ridge lying on the floor of the urethra, continuous with the verumontanum, which takes an anterior course and divides into two fork-like processes in the region of the bulbo-membranous junction. These processes are continued as thin membranous sheets, directed upward and forward, which may be attached to the urethra throughout its entire circumference. In the majority of cases of this general type the fusion of the valves anteriorly is not complete, there existing at this point a slight separation of the folds. However, in a few of the cases of which Lowsley and Knox and Sprunt's are examples, the anterior fusion is complete, while a cleft exists between the folds posteriorly. Another subdivision which really belongs to this general type consists of a single instead of a double valve.

Type II.—In the second general type, of which we have one example, there occurs a more or less cylindrical ridge similar to

*Read in Section on Urology, Southern Medical Association, Fifteenth Annual Meeting, Hot Springs, Ark., Nov. 14-17, 1921.

†From the Brady Urological Institute, the Johns Hopkins Hospital, Baltimore.

‡Twelve of these cases were reported in detail in 1919. See Young, Frontz and Baldwin. Congenital Obstruction of the Posterior Urethra. Jour. Urology, Vol. iii, No. 5, p. 289.

that found in the preceding type with the exception that it passes from the upper aspect of the verumontanum toward the internal sphincter where it divides into two fork-like processes which are continued as membranous sheets attached to the urethra just outside the internal sphincter in a manner similar to that described in the foregoing type.

Type III.—There is a third type which has been found at different levels of the posterior urethra and which apparently bears no such relation to the verumontanum as the types just considered. This was first mentioned by Jarjavay, who described it as an iris valve because of the similarity in shape to the iris of the eye.

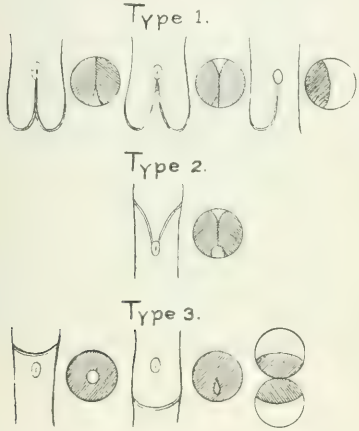


Fig. 1.—Diagramatic sketch showing variations of the three types of congenital obstruction of the posterior urethra.

This obstruction was attached to the entire circumference of the urethra, there being a small opening in the center. Incomplete varieties of this type have been described, the most common being a more or less crescentic or semicircular fold crossing the urethra and being attached either to the roof or floor.

An inquiry into the etiology of any congenital defect naturally suggests an investigation of the embryological development of the part in question, as well as a study of the anatomical variations which may occur within normal limits. It is interesting, therefore, in reviewing the literature of the subject to find explanations based upon these two possibilities. Thus, Tolmatschew, Lindeman, Wilckens and Englisch recognized the frequent occurrence of folds in the prostatic urethra which were considered perfectly normal, only assuming a pathological role when they attained a height sufficient to obstruct the outflow of urine. This view was generally accepted in explanation of these congenital obstructions until the appearance of an article by Bazy in 1903. This writer based his explanation upon the persistence of the urogenital membrane which in the later stages of development occupies a position corresponding to the most frequent site of the valves in question.

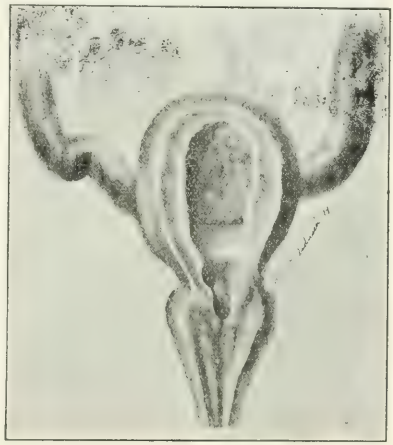


Fig. 2.—Both valves arose from the bifurcation of the crista urethralis, a variety we have classified as Type 1. Note the dilated posterior urethra, the hypertrophied bladder and the hydroureters.

In our opinion neither of the views suggested above explains the development of all of the three types of valve formation. The anatomical view advanced by Tolmatschew may explain some of the cases of Types I and II, while the explanation suggested by Bazy may account for the occurrence of the semicircular diaphragms and the iris variety of valves.

An interesting feature of these types of urethral obstruction concerns the arrangement of the fold, which frequently offers

little or no impediment to the passage of fluid or instruments from without inward, but which reduces greatly the caliber of the urethra during urination. The concave surfaces of the valves are always directed toward the bladder and are ballooned out by the urinary stream. It should be noted in this connection, however, that except in those cases where only slight obstruction exists the valves are continually ballooned out, at least when the patient is in an erect

Fig. 3.—Plate showing the remains of congenital obstruction (Type 2). Note the dilated bladder, the marked hydroureter and the bilateral hydronephrosis. The patient had been operated upon one year previously and the valves ruptured instrumentally. Insert shows dilatation of the sinus pocularis.

posture. In practically all cases in which the obstruction to urination is at all marked, the urethra above and the internal sphincter are greatly dilated, in consequence of which the urethra behind the obstruction is always more or less urine-filled.

The changes in the urethra above the valve differ very little from those resulting from any urethral stenosis except that they are frequently more pronounced because of the long duration and degree of the obstruction. There is always more or less dilatation of the urethra and internal sphincter and in certain of the cases a marked hypertrophy of the longitudinal urethral musculature is evidenced by cord-like bands passing from the point of obstruction to the bladder. In cases of long-standing obstruction, shallow diverticula may be present in the prostatic furrows and the ejaculatory ducts and utricle may be widely dilated. These changes have been quite prominent in two of our cases.

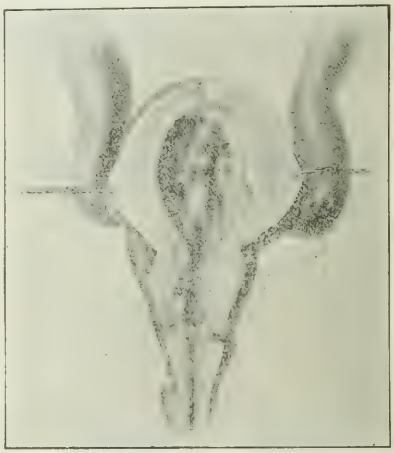


Fig. 4.—An example of the crescentic type of valve (Type 3), varieties of which may be found at any level of the posterior urethra. Note the dilated posterior urethra, the hypertrophied bladder and the hydroureters.

The bladder invariably shows a marked grade of hypertrophy which may be present with or without dilatation. The variation in the bladder capacity depends apparently upon several factors. It has been noted, for instance, in the infants of our series, as well as in several cases reported, that the bladder capacity varies inversely as the degree of hydroureter and hydronephrosis. In other words, in the cases in which the kidneys and ureters communicate with the bladder cavity by large orifices, the bladder is usually contracted. In the beginning of the obstruction the degree of vesical dilatation may have been marked, but a free communication with a dilated upper urinary tract would explain

on mechanical grounds the small hypertrophied bladder. In no case in our series and in none of the reported cases coming to our notice have vesical diverticula been found.

The changes in the ureters and kidneys warrant only brief mention as they differ in no particular from those resulting from any urinary obstruction of long standing. Extreme grades of hydroureter are seen frequently, the ureters approaching or exceeding the intestines in size. Corresponding changes are likewise noted in the kidneys. It is interesting to note that the degree of dilatation of the ureters and kidneys is rarely uniform on the two sides. In the literature as well as in our cases, the left ureter and kidney very frequently showed the greater dilatation.

Symptomatology. — The symptoms of congenital valve formation include those occasioned by obstruction, back pressure and infection, and may differ in no respect from those resulting from any mechanical interference with the outflow of urine. The element of age, however, may modify somewhat the usual clinical picture of obstruction and the history of incontinence beginning at birth is obtained not infrequently. In some cases incontinence occurs alternately with periods of marked frequency during which the child voids small amounts of urine drop by drop. In rarer cases, particularly in those associated with infection, complete retention is noted. The dilatation of the bladder and upper urinary tract frequently causes abdominal distension and dyspnea is not uncommon from increased intra-abdominal pressure. Symptoms due to infection of the urinary tract are common and include anemia, anorexia, loss of weight and strength, and attacks of fever frequently ushered in by chill. Sooner or later cases of marked obstruction, particularly in those to which the element of infection has been added, present in varying degrees the symptoms of renal insufficiency. Thus nausea, vomiting and diarrhea not uncommonly attributed wrongly to a primary gastro-intestinal disturbance, are most frequently of toxic origin. The terminal picture in this group of commonly unrecognized cases is one of uremia.

Diagnosis.—The History. In the diagnosis of this type of congenital obstruction, a careful consideration of the history is of paramount importance. The history of incontinence, or urinary difficulty in combination with abdominal distension, is very strongly suggestive of the condition. Indeed, the presence of any urinary obstructive symptom in a male child, particularly when the urine is uninfected, should immediately call attention to the possibility of this congenital urethral defect.

Abdominal Palpation.—In many of these cases dilatation of the bladder and upper urinary tract is easily demonstrable. Particularly is this true in cases of paradoxical incontinence, the bladder not infrequently being palpable as a hard, tender, conical mass extending as high as the umbilicus, above which large hydroureters and hydronephrotic kidneys may occasionally be felt.

Instrumentation.—Notwithstanding the degree of urinary obstruction present in many of these cases, surprisingly little difficulty is encountered in passing a small catheter. The ease of instrumentation, however, is by no means an index of the degree of obstruction. As indicated above, the majority of cases exert a valve action which operates from within outward, the valve flap being ballooned out during the first passage of urine. This fact is frequently demonstrable at operation if retrograde catheterization is attempted and it readily explains the customary ease of instrumentation as usually carried out. Residual urine in variable amounts is recovered by the catheter.

The X-Ray.—The most accurate means of determining the degree of obstruction and the consequent dilatation of the bladder and upper urinary tract consists in introducing through a catheter 10 per cent thorium or other suitable medium in an amount which equals the volume of urine previously withdrawn. The ureteral orifices in many of these cases are widely dilated and fluid introduced into the bladder readily passes into the ureters and kidneys. A point of practical importance in this technic consists in emptying as completely as possible by pressure over the kidneys and ureters all of the urine contained therein before the introduction of the tho-

rium. Valuable information may thus be secured by means of the x-ray, it being possible to demonstrate not only the degree of dilatation of the upper urinary tract and bladder, but also the exact point of obstruction in the urethra.

Treatment.—The relief of urinary obstruction in these cases is easily and radically accomplished. There are two avenues of approach for the destruction of these valves, the urethra and the bladder. In young children whose urethral caliber is very small, the valves are probably more

Fig. 5. Roentgenogram made after 600 c. c. of thorium had been introduced into the bladder by gravity. Note the dilated posterior urethra and vesical orifice, the irregular bladder outline and the distended ureters and kidneys.

readily approached by opening the bladder suprapubically. Through the suprapubic opening a large sound passed through the vesical orifice readily engages in the valves, which are then easily torn from their attachment to the urethral wall. The postoperative treatment is the same as that following a simple suprapubic. In older children it is possible to introduce a small "punch" instrument (Young) which is passed into the bladder. The instrument is turned slightly laterally and then withdrawn until its fenestra can be felt to engage the valve. In cases in which the cystogram demonstrates a very dilated internal sphincter and urethra encroaching upon the membranous portion, it is safer to divide only one valve at the first sitting, as incontinence may develop if both valves are cut. If the obstruction has not been completely relieved the remaining valve may be destroyed subsequently. Where incontinence does follow operation in younger children, however, it always disappears subsequently.

Fig. 6. Cystogram of case of congenital urethral valves aged ten years. The illustration shows a dilated and trabeculated bladder with dilatation of the internal vesical sphincter and prostatic urethra. The valves in this case were of Type 1.

SPINA BIFIDA

Chronic urinary retention often with incontinence is a well known complication of spina bifida. When the spina bifida is accompanied by a meningocele the diagnosis is evident. When, however, the bony defect is unassociated with any herniation, the so-called spina bifida occulta, careful examination, both neurological and roentgenographic may be required before a positive diagnosis can be made. The possibility of the occult type of spina bifida should, therefore, always be borne in mind in every

case of urinary retention, or retention with incontinence, especially in children. Not infrequently in these cases evidence of nerve injury has not appeared for a number of years after birth. Chute has reported cases in which the first symptoms of bladder disturbance did not appear until adult life and the existence of spina bifida was not suspected prior to the development of these symptoms. It may be of interest to note that the cystogram may give a picture practically identical with that of the congenital valve obstruction, thus em-

Fig. 7. Cystogram of same case shown in the foregoing illustration, made several months after removal of the valves through a suprapubic incision. Note the closure of the internal sphincter.

phasizing the importance of eliminating spina bifida by x-ray in all cases in which congenital valves are suspected.

As is true of all bladder conditions resulting from nerve lesions, the treatment is most unsatisfactory. When the urine is found to be uninfected, instrumentation of all kinds should be avoided, as infection may intervene and the development of seous renal infection follow. When, however, severe infection of the upper tract occurs, temporary suprapubic drainage may in occasional cases be instituted, but is not advisable as a routine procedure.

The occurrence of spina bifida occulta in combination with congenital valves must be extremely rare, but the possibility should be considered in every case in which the latter condition is suspected and ruled out by an x-ray examination of the lumbar and sacral spine. Thus in one of our cases in which this precaution was omitted the removal of the urethral obstruction resulted in only partial relief of symptoms, as it was not until an x-ray examination was subsequently carried out that a developmental defect of the fifth lumbar and

Fig. 8.—Roentgenogram of the lumbo-sacral region showing developmental defect of the fifth lumbar and first sacral vertebrae. This plate as well as those shown in Figs. 3 and 4 were made from the case whose history is given in detail.

first sacral vertabrae was found which explained perfectly the presence of residual urine and the persistence of obstructive symptoms. So far as the writer is aware this is the only reported case combining these congenital malformations and the history and findings are given herewith:

This patient, a boy of ten years, was admitted to the Johns Hopkins Hospital August 17, 1920, with the history of urinary incontinence dating from birth. Four years prior to his admission he had suffered an attack of chills and fever accompanied by pain in the back. Since that time headache and nausea were common.

The general physical examination was negative except for marked enlargement of the lower abdomen occasioned by a greatly dilated bladder

which was palpable to the umbilicus. There was more or less constant dribbling of urine which could not be voided in a stream. A No. 7 ureteral catheter was quite readily passed into the bladder, withdrawing 550 c. c. of infected residual urine, following which an equal amount of 10 per cent thorium solution was introduced and an x-ray taken. The cystogram showed a large oval bladder of somewhat irregular outline suggesting trabeculation. The vesical orifice and prostatic urethra were widely dilated, permitting the escape of thorium to the point of obstruction which lay in the region of the external sphincter muscle.

The condition was diagnosed urinary obstruction due to congenital valve formation of Type I. At operation, August 30, 1920, the bladder was opened suprapubically and the vesical orifice and prostatic urethra found to be widely dilated, permitting the introduction of the index finger to a point approximating the external sphincter. Large sounds were now passed from above downward and little difficulty was encountered in tearing the valve from its attachment.

The post-operative course was uneventful and the patient left the hospital in four weeks with the suprapubic wound healed except for a tiny fistula through which a small amount of urine leaked. The urine was voided in good stream at intervals of from two to three hours.

The patient was next seen on January 3, 1921. A small suprapubic fistula was still present, although, except for the escape of urine in small amounts from this point, there was good urinary control. A catheter passed into the bladder recovered 350 c. c. of residual urine and the cystogram revealed a tight internal sphincter as evidenced by the failure of thorium to enter the prostatic urethra. The presence of residual urine and the persistence of the suprapubic fistula were thought, therefore, to be due to a contracture of the vesical orifice. A small punch instrument was passed and the sphincter divided. This procedure was not followed by any change in the amount of residual urine or by any tendency of the suprapubic fistula to heal.

Subsequent examination of the lower spine by x-ray revealed a malformation of the fifth lumbar and first sacral vertebrae which resulted apparently in a destruction of the nerve fibers supplying the detrusor muscle.

CONCLUSIONS

Congenital valves of the posterior urethra and spina bifida are the most frequent causes of chronic urinary retention in children. The diagnosis is not difficult. As the internal vesical sphincter and prostatic urethra are frequently widely dilated in both conditions as shown by cystography, developmental defects of the lumbar and sacral spine should always be eliminated. The treatment of obstruction from congenital urethral valves is most satisfactory if instituted before the development of serious lesions of the upper urinary tract.

DISCUSSION

Dr. A. J. Crowell, Charlotte, N. C.—We have been overlooking many of these malformations in the posterior urethra of children. This is the largest number of cases of posterior urethral malformations or obstructions reported, so far as I know, and I believe it will put us on our guard and be the means of our finding more of them in the future. We should always get cystograms in children suffering with chronic retention and study them carefully, especially if ureteral catheterization cannot be done. This alone will frequently clear up the diagnosis.

The results of the obstructions were forcibly illustrated in the kidneys and ureters in his cases. In one that I saw, the ureters were greatly dilated and the kidney parenchyma almost gone. Only a trace of 'phthalein was found two hours after intravenous injection. The patient was quite uremic for some time prior to his attack of pneumonia.

I should like to ask Dr. Frontz why it is we do not have diverticula in these cases of obstruction in children.

Dr. H. W. E. Walther, New Orleans, La.—We see a certain number of so-called strictures of the urethra treated with dilatation. I can recall two cases in children under ten which produced an undue amount of bleeding following delicate instrumentation. They were cases that were not easily controlled and slipped away from me. Dr. Frontz's paper brings to my mind the thought that they may have been valve malformations.

Dr. John T. Geraghty, Baltimore, Md.—This condition can occur at any time. Simply that an individual has reached maturity does not exclude congenital valve. Whether a child lives or not, unless the valves are destroyed, depends upon the amount of destruction. One of our patients was thirty-five before he applied for treatment and he died shortly afterward of renal insufficiency. I saw one patient of thirty-eight who died of renal insufficiency and autopsy revealed congenital valves. We must bear in mind that this condition may extend into early manhood and be one of the causes of chronic obstruction.

Dr. Frontz (closing).—Regarding the infrequency of vesical diverticula in these cases of congenital obstruction, there is some difficulty in reaching an adequate explanation. The absence of diverticula, however, is apparently the rule, as it was never noted in our series of cases and no mention of it is recorded in the literature. In many of the cases there was an associated hydroureter and hydronephrosis and it seems probable that this dilatation of the upper urinary tract might serve to bear the brunt of the pressure resulting from the obstruction, thus protecting the bladder and diminishing the possibility of diverticular formation. At any rate, in cases associated with dilatation of the ureter and kidney, the bladder was always contracted and thick-walled. In the cases unassociated with hydroureter and hydronephrosis, marked dilatation of the bladder was frequently noted, the bladder dilating as a whole, thus probably diminishing the possibility of a break at any one point.

FREQUENTLY VIOLATED PRINCIPLES IN OBSTETRICS*†

By W. A. Fowler, M.D., F.A.C.S., Oklahoma City, Okla.

Asepsis is perhaps the most frequently violated principle in obstetric practice. This is probably due to the following facts: the aseptic conduct of labor represents a very difficult problem in technic. The rather high natural resistance of the tissues of the lower part of the birth canal permits frequent violations of asepsis with only a relatively small percentage of infections. The milder infections are very easily overlooked by the casual observer. Finally, of necessity, the vast majority of confinements are conducted by men who do not undertake any other class of aseptic surgery and, therefore, have not developed a considerable degree of perfection in technic. In view of the fact that perhaps ten thousand mothers die every year in the United States of sepsis, and several times that number are subjected to life-long morbidity due to the same cause, and that sepsis is nearly always preventable, this subject should command the earnest attention of every man who practices obstetrics.

It should go without saying that the same precautions should be exercised in obstetrics as in any other surgical procedure with respect to the hands, sterile goods, solutions, basins and instruments. It should be remembered that touching the outside of the glove with the ungloved hand or against the perineum is poor technic. A glove so contaminated should be changed. Merely passing it through an antiseptic solution is not sufficient. After every possible precaution is exercised to maintain an aseptic technic the patient should be further protected by the obstetrician's abstaining from vaginal examinations so far as possible. It is possible to ascertain all needed information by abdominal and rectal examination and deliver without vaginal examination in perhaps 90 per cent of cases. In this connection it should be recalled that the introduction of rubber gloves had much less effect upon both morbidity and mortality than the substituting of rectal for vaginal examination.

Interference with the normal process of labor in the first stage, in the absence of conditions making interference urgent, is a procedure too frequently resorted to. Bearing-down efforts by the patient, manual dilatation of the cervix, forceps delivery and the administration of pituitrin before complete dilatation of the cervix are the methods used, without sufficient consideration of the ultimate good of the patient and for no other reason than that the progress of the case is slower than suits the convenience of the patient or doctor.

Now, we know that the normal process in the first stage is merely one of alternate contraction and relaxation of the uterus and an entirely passive state so far as voluntary actions of the patient are concerned. While the contractions occur with considerable force, the bag of waters and the presenting part press evenly outward, accomplishing dilatation of the cervix with the utmost gentleness. It is very rare, indeed, that any damage of consequence is done to the cervix in cases in which labor is allowed to proceed according to this perfect plan of Nature. The position of the cervix and lower uterine segment thus remains practically undisturbed and there is no stretching of their ligamentous or fascial supports.

Bearing-down efforts by the patient in the first stage are usually the result either of the wrong conception gained by the patient before labor that she "must work to get through," or of instruction by some one during labor that she should bear down. Sometimes the most insistent meddlesomeness is necessary to induce her to do so. As a result of bearing down in the first stage the head is often forced down to the pelvic floor, carrying the cervix before it and markedly stretching the ligamentous and fascial supports, thus predisposing to subsequent displacement of the uterus. The cervix caught between the head and the pubis frequently becomes markedly edematous, offering an obstruction to delivery. I have seen one

*From the Department of Obstetrics, Oklahoma University School of Medicine.

†Read in Section on Obstetrics, Southern Medical Association, Fifteenth Annual Meeting, Hot Springs, Ark., Nov. 14-17, 1921.

case in which bearing down, according to the instruction of the nurse and relatives, thus resulted in the crushing off of a piece of the edematous cervix the size of the first joint of the thumb. Likewise elongation of the cervix is frequent, predisposing to post-partum hemorrhage. Lacerations of the cervix are frequent and there is increased danger of rupture of the uterus. The practice is altogether pernicious.

Manual dilatation of the cervix is still frequently resorted to by many men. Pollock states that the manually dilated cervix is a manually torn cervix in nearly every case. I believe this is absolutely correct. The practice, in the absence of urgent indications for interference, is pernicious and ought to be discontinued.

The use of forceps before complete dilatation produces the same results as the procedures just mentioned. Still many men are applying forceps in this stage, notwithstanding the long-positive teaching, undisputed by any authority, that the cervix should be fully dilated before the forceps are applied.

Pituitary extract under various names has come into very extensive use during the past few years. It has, to a large extent, supplanted the methods of interference just previously discussed. If this were the only means of lessening these pernicious practices I would almost be tempted to say that its extensive use is justified. Many doctors use it routinely in all cases where time will permit its administration. By some it has been compared to the automobile as a necessary part of the armamentarium of the modern physician. The fact that numerous maternal deaths due to rupture of the uterus following its administration have been reported and that it is considered, by the best authorities, a frequent cause of stillbirth, has seemed to have little effect upon the advocates of its use. It is given because it usually increases the frequency, duration and severity of labor pains and, therefore, shortens labor.

During a labor pain the contraction of the uterus squeezes the blood out of the placental sinuses which are filled again with the arterial blood of the mother during the period of relaxation which follows. Now, natural labor pains will very rarely last longer than a minute and a half and there is a sufficient interval between pains to permit the refilling of the sinuses and proper oxygenation of the fetal blood. Therefore, in addition to the danger of rupture of the uterus from the violent pains sometimes produced and fracture of the base of the baby's skull from too strong forcing of the body against the head, there is the very evident danger of asphyxia from lack of sufficient blood in the placental sinuses as well as from pressure upon the cord as it passes across a part of the baby's body exposed to pressure by the uterus. I have seen a pain lasting five and one-half minutes followed by incomplete relaxation of the uterus and another pain lasting three minutes following the administration of only three minims of pituitrin. During the first pain the fetal heart rate varied from 108 to 180 per minute. Whether the still-birth was due to pressure upon the cord which was around the neck or to insufficient blood in the placental sinuses or to cerebral injuries from the violence of the pains, I am unable to say.

The conditions usually accepted as justifying the use of pituitary extract are: (1) uterine inertia; (2) second stage of labor; and (3) unobstructed delivery.

Uterine inertia is an extremely rare complication in properly conducted cases. The fact that labor may not be progressing so rapidly as suits the convenience of either the patient or doctor, does not constitute uterine inertia. Before diagnosing uterine inertia the frequency, duration and severity of the pains should be carefully noted.

The second stage of labor means, of course, that the cervix is fully dilated. Complete dilatation of the cervix is not to be estimated by a certain number of finger breadths, but it is dilatation sufficient to allow the presenting part to pass through the cervix. When the cervix is sufficiently dilated to allow the presenting part to pass through we may be sure that the strong contractions of the uterus will pull the cervix up over the presenting part and beyond the reach of the examining finger. Therefore, the fully dilated cervix cannot be felt by the examining

finger and when it can be felt the case should be treated as the first stage of labor.

Unobstructed labor depends not only upon the size of the pelvis, but also upon the presentation, position and size of the fetus, very difficult factors to determine with any degree of certainty. The man, therefore, who diagnoses unobstructed labor before delivery pleads guilty of being a high class obstetrician.

If the labor pains are carefully timed before and after the administration of pituitrin, if the fetal heart tones are carefully observed during its action and if the cervix is carefully examined after its use, it is my opinion that the men who are using this agent will lose much of their enthusiasm for its use and the field of its indication will be found to be very narrow.

In the treatment of eclampsia we not infrequently find patients with severe peridental infection who have been advised not to have it treated during pregnancy. The kidneys and liver have, therefore, been subjected to the added burden incident to the infectious processes. This is undoubtedly a frequent factor in determining the breakdown in liver and kidney function which we find in eclampsia as well as in the toxemia of early pregnancy. The principle which should be followed in all these cases is to treat infectious processes during pregnancy as if pregnancy did not exist, the only variation being in the last month of pregnancy. Therefore, if the pregnant woman has a peridental abscess the tooth should be extracted. If she has pyorrhea it should be actively treated. If she has infected tonsils they should be removed. If she has pyelitis it should be treated just as in a non-pregnant patient.

As to the problem of the unengaged head, it is in these cases that we see many of the major tragedies of obstetrics. A large majority of these cases come first to the general practitioner and it is upon his proper conception that the final outcome very largely depends. We should say that in cases in which the pelvic sufficiency has not been determined by either careful pelvic measurements or previous normal labor with a normal sized baby, a good rule to follow is, "No engagement, no vaginal examination until ready to proceed with whatever method of delivery may be indicated."

Such cases with gross pelvic contraction or with a history of previous difficult deliveries should be referred to the best available medical and hospital service. In this way, should the course of labor indicate a cesarean section, this method of relief will not have been made impossible by frequent vaginal examinations and efforts at other methods of delivery.

This paper may be criticized as being entirely too elementary, because it deals with facts long established and generally taken for granted by men making a special study of obstetrics. It has become a fashion for obstetricians to devote most of their writings to pet methods of interference with the natural course of labor. I should not criticize them on this score because these things, in the hands of experts, may result in an improvement in morbidity. The large majority of obstetrics, however, will be done by general practitioners for at least a long time to come. In their busy lives they do not have time to perfect the fine points in technic which these procedures require. Because they have been advocated by men of high standing, these procedures are frequently used by general men with results that are not at all what the experts had in mind. It seems to me that our greatest opportunity for the reduction of mortality and morbidity in obstetric practice, so unsatisfactory at this time, is to deal more and more with fundamentals which are sometimes forgotten in the busy life of everyday practice.

534 Liberty Natl. Bank Bldg.

DISCUSSION

Dr. John A. Hatchett, Oklahoma City, Okla.— Obstetric asepsis, in spite of the persistent emphasis that has been given it by our medical schools, societies and literature, still remains a most frequently violated principle in obstetric practice. The physician as a carrier of infection to the parturient woman has long been and still remains a most deadly factor in the spreading of puerperal infection. His daily and close contact with septic processes should be an ever present warning to him to use the most solicitous aseptic care. The average physician does considerable minor surgery both in and out of his office. He

lances and dresses boils, abscesses, carbuncles, felons, leg ulcers, sore hands, etc. He visits cases of erysipelas, scarlatina and diphtheria. In treating and dressing his cases he does not always use rubber gloves and forceps to handle the dressings. In many instances the physician's obstetric grip is small and does not contain many things needed to do aseptic obstetrics in the home.

After practicing for some time and being fortunate enough to escape any serious misfortune, such as a bad case of sepsis, not a few physicians become flushed with success and come to conclude with the laity that after all childbirth is a natural process and does well without the aseptic precautions so urgently advised by the cautious in the conduct of labor.

It is a fact that many physicians do not like obstetric practice. To them it is a dreaded task. They feel, however, that they must take obstetric patients to hold the practice of the family. No one ever does excellently the thing he dreads. Want of enthusiasm and love of the work renders one incapable of attaining a high standard of efficiency.

Admitting Dr. Fowler's statement that the aseptic conduct of labor represents a very difficult problem in technic, we still feel sure that obstetric asepsis can be wonderfully improved in the home if the right means are employed.

For many years hence, the majority of the births in our country will take place in the American home. From this home comes the greatest per cent of obstetric morbidity and mortality. To raise the ideals of this home and its physician by a specifically organized educational movement under the banner of "The Mother and Child Welfare," will with adequate Governmental aid, do much to fertilize the soil out of which will grow the utopian ideals of our worthy Chairman, namely, the establishment of institutions to care for all women in childbirth.

Dr. C. V. Rice, Muskogee, Okla.—Rectal examination is probably the greatest advancement made in obstetrical practice. All of us cannot boast of cesarean section and other important operations, but with the aid of rectal examinations we can practice careful, conservative obstetrics and greatly reduce our mortality and morbidity. Experience has shown us that the major part of serious cases of infection at childbirth may be prevented by the rectal examination at labor. Williams says: "As long as vaginal examinations are made, infection will occasionally occur as it is impossible to disinfect the vulva. Sepsis kills almost as many women as all the remaining complications of pregnancy put together." How little we can do for an active case of sepsis! The patient's recovery depends upon Nature's kindness, not upon our tardy efforts.

One of the abuses in obstetrics Dr. Fowler spoke of is the use of pituitrin. The following facts should be kept in mind:

(1) Complete effacement and dilatation.

(2) Where there is no obstruction to the passenger in the second stage of labor.

(3) It should never be given in the presence of a contraction ring.

(4) It should never be given in premature labor as the contraction causes too great a pressure on the baby's head possibly causing meningeal hemorrhage.

Forceps are also much abused. There are two counter-indications for the forceps that are sometimes overlooked by the busy general practitioner: first, when the cervix is not fully dilated; and, second, the application to a floating head, which in many cases would mean disaster to both mother and child. When the forceps are indicated and the patient is at her home, she should be removed from her bed to the kitchen table, where the doctor can do his work much more skillfully. The method of turning the patient across the bed, placing the foot on the rail and pulling, can result in nothing but trouble.

EYE, EAR, NOSE AND THROAT

GLAUCOMA FOLLOWING CATARACT EXTRACTION*

By Wallace Ralston, F.A.C.S.,
and
Everett L. Goar, A.B., M.D.,
Houston, Tex.

This subject has been forcibly called to our attention by the end results of a few cataract extractions within recent years. It has seemed to us that the four cases occurring in our practice make this unforeseen and unwelcome sequella frequent enough to justify a word of warning to operators, that they may be on guard, and follow their post-operative cases more closely. An early diagnosis is absolutely essential if vision is to be saved.

Considering the comparative frequency of this condition, one is surprised at the paucity of the literature on the subject. It seems probable that this is due to the fact that surgeons, as a general rule, fail to follow up their cases and to publish their end results. There are several known reasons why an increase in tension occurs following cataract operation. According to Burton Chance,[1] there is always a blocking of the filtration angle and it is usually due to

(1) Swelling of remnants of the cortex;

(2) Displacement and tension of the capsule, or its inclusion in the wound;

(3) Plastic iritis; and

(4) Ingrowth of epithelium from the wound, forming a cyst of the anterior chamber.

To these causes may be added

(1) An exudate blocking Schlemm's canal.

(2) A falling forward of the root of the cut iris after iridectomy in combined extraction.

Hanover Stoelting[2] states that inclusion of the capsule in the wound is one of the commonest causes of glaucoma and that it is usually of the chronic inflammatory type. According to this author, glaucoma follows discission after simple extraction much more frequently than in the combined extraction. He questions the importance of iris prolapse in the etiology of post-operative glaucoma, referring to Holth's and Schweigger's investigations in support of his view. We have seen one case totally blind, in which the iris on each side of the coloboma was caught in the wound, causing marked upward displacement of the pupil.

Stieren[3] reports three cases of glaucoma following cataract extraction and concludes that the commonest cause of the condition is the blocking of the spaces of Fontana by semi-fluid vitreous. In one of his cases upon which a trephine operation was done, semi-fluid vitreous escaped through the opening. There is no question that an inclusion of corneal epithelium in the wound with a subsequent down-growth of epithelium, causing a cyst of the anterior chamber, may occasionally give rise to increased tension. Elschnig and Oatman[4] have each reported cases of this sort, the eyes of which were examined histologically.

It seems probable that a number of causes, singly or combined, may produce increased tension after operation. We would particularly call attention to that type of glaucoma which comes on insidiously months or years after the cataract operation, without marked inflammatory symptoms, characterized by a slowly progressive loss of vision. The absence of inflammatory symptoms is the chief reason, perhaps, why these patients, particularly those who live at a distance, fail to report to the surgeon until too late. It is often very difficult to make a diagnosis of these cases unless they can be kept under extended observation. Stieren[3] has pointed out that perimetry is of no value in an aphacic eye because of the prismatic effect of the lenses necessary to render the vision acute enough to perceive the test objects. This does not hold true in testing the size of the blind spot, and, provided the vision can be corrected to 20/50 or better, this is an excellent means of diagnosis. The blind spots should be taken and recorded at frequent intervals. The other important diagnos-

*Read in Section on Eye, Ear, Nose and Throat, Southern Medical Association, Hot Springs, Ark., Nov. 14-17, 1921.

tic sign is a moderate increase in tension at several observations. In our experience a tension constantly above 30 mm. (McLean) usually means glaucoma. The ophthalmoscope is of little help in early cases. The small image in the aphacic eye renders slight change in the fundus impossible of detection. In the later cases pallor of the disk with glaucomatous excavation can usually be found. The diagnosis must be made chiefly from the gradual but progressive diminution of vision without other apparent reason; the slight but constant elevation of tension, and the progressive enlargement of the blind spots. Some of the cases show low-grade inflammatory symptoms with a slight amount of pain. It is well to direct operated cataract cases to report at least every six months for examination, and to return immediately if the vision becomes poor or other complications occur. In this way the patient will usually be seen before much damage has been done.

How shall we treat these cases? A broad iridectomy certainly is indicated. We confess to having had little success in treating these cases, as evidenced by these case reports. If one accepts the theory that the increased tension is caused by the blocking of Fontana's spaces by vitreous, then an operation leaving a fistulous opening seems indicated. Owing to the danger of late infection we have not felt justified in doing this operation, and have not done it. In one case we have tried iridectomy with fairly successful results. In cases which we can keep under constant observation we have temporized with miotics. The treatment and results are set forth in the following case reports:

Case 1.—E. B. B., male, farmer, age 78, had good general health. His family and personal history were negative. Vision: fingers were seen at 15 feet with either eye. Diagnosis: senile cataract. November 17, 1920, a combined extraction of the right lens was done. Recovery was uneventful. A good coloboma with free pillars was obtained. Apparently the operation was quite satisfactory. He returned December 28, 1920, complaining of slight pain in the eye operated upon. Vision with +9.00 S +3.50 C. ax 170 was 20/70. There was slight ciliary congestion. Tension O.D.38, O.S.34 (McLean). There was a fairly well marked glaucomatous cup at this time. January 14, a slight secondary was needled. March 1, vision had decreased to 20/100. Tension in this eye ranged from 20 to 45. He was put on 1 per cent eserine salicylate every four hours, with hot applications for 30 minutes every four hours when tension was up. Combined extraction was done on the left eye April 27, 1921. This eye was irritated for some weeks after operation, but there was never any exudate and the eye soon became quiet. He was then directed to use eserine in each eye twice daily. June 28, 1921, the vision of the right eye, with correction, was 20/40. The left eye, with correction, was 20/20. The vision in the glaucomatous eye had improved markedly under miotics.

Case 2.—J. C. R., age 79, was a ranchman. Family and personal history were negative. He had been under our observation for 12 years. Previous to 1909 his vision was 20/20-2 in each eye, corrected to 20/20 with +0.75 S. In 1910 his vision became poorer, O.D. 20/70, corrected to 20/30 with —1.00 S. O.S. 20/30. Sight gradually diminished until in 1919 it was 20/200 in each eye, with constantly increasing opacity of each lens. As long as the fundus could be seen there was no evidence of fundus disease or of excavation of the nerve head. At no time were there increase of tension or inflammatory symptoms. In 1919, an extraction after preliminary iridectomy was done. Recovery was uneventful, though some cortical material left at operation was slowly absorbed and there was some redness of the eye persisting longer than usual. Eight weeks later a needling was done, which gave a black pupil. Tension had been but little above normal at any time since the operation. When examined ophthalmoscopically there was a typical glaucomatous cupping. The pillars were free and the operative wound was apparently perfect. Vision was never better than 20/150 after the operation.

Case 3.—Mrs. H. T. G., age 55, consulted us November 17, 1916, with a history of cataract in her left eye for the previous five years and of gradually failing vision in the right eye. Vision O.D. 20/200; O.S. hand movements. Light projection was perfect. Tension was normal in each eye. November 18, simple extraction of left lens was done. There were no secondary cataract or complications. A few weeks later simple extraction was done on the right eye. When fitted with lenses some months after operation the vision was O.D. 20/30+, O.S. 20/20. August 5, 1918, her vision was O.D. 20/30+, O.S. 20/20. This patient was not seen again until May 25, 1921, at which time she complained of having had attacks of slight pain in the right eye, accompanied by congestion and blurring of vision. Tension was O.D.50, O.S.25 (McLean). There was a well marked glaucomatous cup in the right eye and the field was reduced almost to central vision. Vision in O.S. 20/20+, blind spot normal size. Iridectomy was done in the right eye with a consequent fall in tension. There was a hemorrhage into the vitreous following the operation and when last seen her vision in this eye was fingers at three feet.

Case 4.—J. L. A., age 72, was a retired physician. Has had cataract in right eye for twelve years and left eye has recently become blind. Examination revealed apparently double senile cataracts. Tension normal to palpation. Left pupil normal. Urinalysis negative. Right lens removed by combined extraction May 7, 1914. Following the operation a thin secondary was needled and vision of 20/30 with correction was obtained. When seen again May 16, 1919, his vision in the operated eye had dropped to 20/70. The nerve head was gray and excavated. There were a few fine vitreous opacities. The left eye had lost light perception. Vision rapidly decreased in the operated eye until total blindness ensued within a few months. There were no inflammatory symptoms at any time in this case and never more than slight rise in tension. This is a case of chronic simple glaucoma, and the fact that the unoperated eye was also affected makes it probable that the glaucoma was only incidental to operation and not changed by it.

BIBLIOGRAPHY

(1) Chance: Ophthalmology, July, 1910.
(2) Stoelting: Graefe's Archiv. fur Ophthal., Vol. 81, Part 3, 1911.
(3) Stieren: Am. Journal of Ophthal., Series 3, Vol. 4, No. 6.
(4) Oatman: Arch. of Ophthalmology, May, 1905.
(5) Collins, T.: British Med. Tel., 1890, I. P. 297.
(6) Baynton: J. Ophthal. Oto-Laryng., 1890, II.
(7) Buller: Am. Jour. Ophthal., 1891, VIII.
(8) Knapp, H.: Archiv. of Ophthal., 1892, XXI.
(9) Knapp, H.: Arch. f. Augenheilk, 1895, XXX.
(10) Lewis: Manhattan Eye and Ear Hosp. Rep., 1895, II.
(11) Mitchell: Ophthal. Record, 1897, VI.
(12) Ayres: Arch. of Ophthalmology, 1898, Vol. XXVI.
(13) Taylor: The Lancet, 1900, II.
(14) Bernstein: Archiv. of Ophthal., 1900, Vol. LI.
(15) Wicherkiwicz: Annal. d'Oculistique, 1904, Vol. 132.
(16) De Lapersonne: Archiv. d'Ophthalmol, 1904, XXV.
(17) Duprey: Dutemps Annal. de' Oculistique, 1904, Vol. 132.
(18) Elschnig: Klin. Momalsblatterf. Augenheilk, 1894, XXXIII.
(19) Bulson: Ophthalmic Record, 1907, XVI.
(20) Risley: Ophthalmology, 1910, VI.
(21) Goldberg: Ophthalmology, 1910, VI.
(22) Witalmski: Klin. Monatsblatter f. Augenheilk, 1912, L.
(23) Komoto: Klin. Monatsblatter f. Augenheilk, 1912, L.
(24) Jacquean: La Clinique Ophthal., 1914, XX.
(25) Hulen: Cal. St. J. Med., Nov., 1914.
(26) Lebensohn: Ann. of Ophth., 23, 1914.
(27) Pagenstecker: Klin. Monatsbl. f. Augenheilk, 1895, Vol. 33.
(28) Lloyd: Am. J. of Ophth., 1919, Series III.
(29) Menacho: Arch. d'Ophthal., 35, 1916.

DISCUSSION

Dr. A. C. Lewis, Memphis, Tenn.—According to LeGrange, there is always a neuropathic strain in these glaucoma subjects. This statement has been borne out in my observations.

We do know something about the pathology of glaucoma. We know that the filtration angle becomes wholly or partially obstructed, causing an increased tension followed by more or less degenerative changes of the optic nerve and retina. Weeks, of New York, encountered four persons with secondary glaucoma in his cataract extractions. This is probably about an average of its occurrence in this operation. Giord calls attention to the danger of overlooking in a beginning cataract a chronic glaucoma. The symptoms of the two diseases at this stage are not unlike. We are apt to attribute the diminution of vision to the lenticular changes present, and unless we watch the fields and the tension closely we are apt to fall into this error.

I had one case of secondary glaucoma following extraction. I have never seen a case which I could class as idiopathic. I think there is always a definite cause for glaucoma following cataract extraction: that either a chronic glaucoma at the time of the extraction has been overlooked or we have a blocking of the filtration angle by iris tissue or the lens capsule following the operation.

Dr. Ralston mentioned the tonometric readings. I believe he said that a case that runs very long with a tension of 30 with the McLean would be a suspicious case of beginning glaucoma. According to my recollection of the McLean tonometer the normal is from 30 to 40, and I think 30 with the McLean is really a little below the average of normal tension.

Dr. Charles A. Bahn, New Orleans, La.—An important factor in the etiology of glaucoma following extraction of cataract is that vitreous is brought in contact with the aqueous, whether it be through direct vitreous loss or through the filtration of the vitreous into the anterior chamber.

Especially as most of our cataract extractions are done on the aged, the percentage of glaucoma is larger than we are inclined to believe. This is illustrated by the number of glaucomas, even with a well done discission, which appear months and years after operations of a congenital, traumatic and senile cataract. It is therefore important that we do not glibly promise complete and permanent restoration of sight.

It strikes me that the Doctor has not given quite enough attention to the slight dulness of the cornea as a diagnostic symptom.

I have examined one or two patients of this type with the corneal microscope and Gullstrand slit light attachment which enables one to study it from a different angle. I am sure that our ideas of external eye pathology will be entirely revolutionized by this valuable diagnostic aid.

I would be inclined to do an Elliott in preference to iridectomy in these cases, because with older patients there is less danger of infection, and because an iridectomy was probably done at the time of operation for cataract.

It would be very interesting in the cases reported to know whether or not there had been any evidence of pre-existing glaucoma. It has doubtless occurred to all of us that perhaps in some cases the operation was the match that touched off the powder. It behooves us to examine all cases more carefully before we operate. Latent glaucoma should be kept in mind as a potential cause of poor post-operative results.

Dr. William F. Hardy, St. Louis, Mo.—Anterior chamber cyst is a relatively infrequent cause of secondary glaucoma.

In his reference to idiopathic glaucoma the essayists mention glaucoma which has occurred some time after operation for cataract. I have been unfortunate enough to see several of these cases occurring two years after extraction which were of the chronic simple type. As to iridectomy in such cases, I think it would be of little help.

There may be variations in tension of an eye which has been operated upon for cataract. I have one in mind where the tension varied from 1½ to 40 (Schoetz) without any treatment whatever. Over a period of time I would get various readings. It finally settled down to a tension of about 15 to 18.

My feeling is that the cases of glaucoma after cataract are due many times to prolapsed vitreous or incarcerated iris or lens capsule. The greatest objection to the Smith Indian operation is the fact that there is not a careful toilet of the eye. I believe that if a good toilet were accomplished in all instances, the number of cases of glaucoma following cataract extractions would be lessened.

Dr. J. A. Stucky, Lexington, Ky.—There is one question about idiopathic glaucoma following cataract extraction that I think we as oculists lose sight of. There cannot be an effect without a cause. It is a big question as to what we mean by idiopathic. The same cause of glaucomatous condition after a cataract operation is the one that produces glaucoma without operation, plus the traumatism that has been produced by the operation that interferes with the function of the eye.

I probably see a larger number of cases of glaucoma in my mountain clinics than the average oculist. I have found in the people of the mountains that in nine cases out of ten there is a focal infection that has had to do with the glaucoma. Most of them have bad teeth. Most of them have nasal trouble, but for the last ten or twelve years I have done fewer operations for glaucoma than ever in my life. Unless there is haziness of the cornea and great pain, I hesitate about operating until I get the patient in bed and lower the blood pressure, even if I have to bleed him. I think I am justified in making an appeal for the restoration of the lost art of blood letting in many of these cases. In eight or ten cases I have perhaps saved an eye and prevented operation by withdrawing enough blood to lower the blood pressure. The first forty-eight hours (or longer if necessary) with the patient in bed, deplete him, sweat him, purge him, with as little exertion on his part as possible, and the free use of miotics. It does not make any difference whether the case has been operative or not, keep the blood pressure down. I have never seen a case of glaucoma in my clinics in the mountains which did not have a high blood pressure, or a high degree of intestinal toxemia, or decided focal infection in the mouth. That may be characteristic of the mountains of eastern Kentucky.

My results have been more favorable with iridectomy than with the Smith operation.

Dr. John H. Burleson, San Antonio, Tex.—The cause of glaucoma is the blocking of the filtration angle. I always do a preliminary iridectomy before cataract extraction. The location of the incision plays a prominent part in the increase of tension after operation. If you first do a preliminary iridectomy, make the incision within the cornea and do the Smith Indian operation, probably there are fewer secondary glaucomas than with other operations. You minimize the probability of an incursion of the iris and you certainly minimize the accident of leaving cortical substance in the anterior chamber. I have had fewer increased tension cases since I have been pursuing that plan.

Dr. John Green, Jr., St. Louis, Mo.—Dr. Ralston speaks of a patient's having vision of "fingers at fifteen feet," with either eye, which would indicate that this was a case of immature cortical cataract. We should take into consideration the role played by retained cortex in the development of a low-grade iridocyclitis with possible blocking of the filtration angle. Under the circumstances mentioned above, I would suggest (if the operator did not care to perform the intra-capsular operation) a preliminary capsulotomy after the method of Homer Smith. Possibly a better operation in these cases of secondary glaucoma might be iridotasis. Successful iridotasis is practically free from the danger of late infection and is effective in reducing tension.

Dr. Ralston (closing).—Dr. Lewis mentioned the readings of the McLean. It has been our experience that the normal is around 15 to 20 with this instrument. We use the tonometer in all such cases as a routine procedure.

Dr. Bahn's mention of the fact that we get a better idea of the anterior half of the eye with the Gullstrand slit lamp is quite correct. That is a wonderful instrument. I am informed that it is being improved. Therefore it might be a good idea for those who are contemplating buying this lamp to wait until next spring and get the perfected instrument.

It is a fact that even with a well-made discission an attack of glaucoma may be produced. In making our discission we should be careful not to disturb the region of the periphery of the filtration angle. Keep away from that as much as possible with our needle knife.

As to the existence of glaucoma prior to operation, one of these cases reported was a doctor 68 years of age who had a simple glaucoma in the eye opposite the one we operated upon. There was complete atrophy, but this glaucoma following extraction of the cataract did not appear immediately afterward, probably two or three years after, and gradually progressed to almost total blindness. So we do find these cases frequently, but not immediately following. It seemed not to be precipitated especially by the cataract operation in this case.

Dr. Hardy mentioned a very important point when he said that we should be extremely careful of the toilet. That is a point that is often overlooked, especially by a timid operator who is afraid to handle the eye after the lens has been extracted. It is extremely important to get every bit of cortical material out of the eye. Personally we use irrigation according to Lippincott's method. Like Dr. Burleson we do a preliminary iridectomy in every case where conditions permit.

Before we operate every case is gone over carefully as to focal infections, teeth, intestinal tract, sinuses, etc. After the operation I do not think in any of these cases we found further focal infection. We have not found high blood pressure in cases of glaucoma, as Dr. Stucky mentions.

Dr. Green spoke of the Homer-Smith operation. This has not been a satisfactory procedure with us. We have not obtained the results we anticipated. Owing to the danger of infection, the danger of going into the eye twice, the danger of glaucoma, and the shock to the patient of two operations, and finding no great advantage over the combined operation with preliminary iridectomy, we have not carried this very far.

THE INCREASING IMPORTANCE OF PERORAL ENDOSCOPY*

By T. E. Carmody, M.D.,
Denver, Colo.

The discovery of so simple a method for examination of the respiratory and upper digestive tracts has practically revolutionized laryngeal and esophageal surgery.

The direct laryngoscope, bronchoscope and esophagoscope as introduced by Killian accomplished much, but the suspension later introduced by Killian completed the discoveries. However, simple introduction was not enough, and if it had not been for such men as Jackson, Johnson and Lynah, who developed the bronchoscope and esophagoscope, and Lynch, who improved and developed the suspension, we should at the present time be using indirect methods.

The advances have been rapid, especially in the last five years. The report of a foreign body removed by bronchoscopy or esophagoscopy was a rare gem in our medical literature a few years ago, while today most of the journals of our special line contain something on peroral endoscopy in every number.

Even in so limited a field many things have been learned either by personal experience or by watching others. Many of us learned that there is a limit in the time that we may work in the bronchus without producing too much reaction either in the mucosa of the larynx or bronchi. Jackson has placed the limit at one-half hour in children with possible increase of this in adults, and it is to be understood that even this is much too long in some cases.

Jackson has led the way, as in most other things in this field, in operating without an anesthetic, either general or local, and many of us have followed more or less closely.

It seemed for a time that the removal of foreign bodies from the respiratory and digestive tracts was the only use to which the bronchoscope could be put, but it has come into much wider use.

All pathological conditions of the lung, with the exception of tumors, may be attributed to foreign bodies, although they may not be macroscopic and are possibly not always received through the upper respiratory tubes. However, we have up to the present given most of our attention to the objects of sufficient size to be appreciated as foreign bodies by the patient and physician.

The size, confirmation and composition of the object aspirated is of the greatest importance to the bronchoscopist in making diagnosis and prognosis. Many objects have been present for years without producing great damage, while others may produce much in hours or days. Without laying down any rule, it has been found that the former are mainly metallic, while the latter are chiefly vegetable. The peanut is probably the worst offender.

The diagnosis of foreign body in the respiratory tract may be very simple or the reverse. It may be made by taking the history, or it may require all of our skill together with that of our internist

*Read in Section on Eye, Ear, Nose and Throat, Southern Medical Association, Fifteenth Annual Meeting, Hot Springs, Ark., Nov. 14-17, 1921.

and roentgenologist. McCrae calls especial attention to the fact that a safety pin in the esophagus may cause diminished expansion. The asthmatic wheeze was noted by many workers in this line. The author recalls cases in which this was noted, but it remained for Jackson to call our attention to it and give the name. Opaque objects, if not diagnosed from history and physical examination, are easily discovered in the skiagram, while those which do not cast a shadow of themselves may or may not reveal their presence by blocking a bronchus and acting either as a valve allowing air to escape while none is allowed to enter, or by imprisoning air in the lung which is very soon absorbed. Our attention was first directed to this fact by Iglauer. If a skiagram is made early in the case where air is imprisoned, we find the diaphragm depressed, but as this condition is very seldom found in practice, since the case does not present itself until after the air is absorbed, the diaphragm is arched more on the affected side, and as we have negative pressure on the affected side, the shadow is due to decrease or absence of air and the filling of blood vessels. This does not seem so important today, for the roentgenologist has learned many things along with us and has also taught us many.

On the shape of the object, its location, and the part or face presenting, as well as the length of its sojourn, may depend the pathological changes already present and we may judge those yet to come as well as the difficulties which we must face in its removal.

It must be remembered that the majority of foreign bodies in the air passages gain entrance during childhood, but the pathological conditions produced may be present in adult life. The extent of the pathology is in direct ratio to the time the object is in contact with the tissue, considering the nature of the object, as stated before.

Beside the improvement in instruments and methods of diagnosis, important aids have been furnished. The first to be mentioned is the Lynch table. Its importance cannot be overestimated for objects in which gravity may be a factor in removal. It also relieves the operator from physical strain for which its position range was conceived.

The use of the fluoroscope, while unnecessary in many cases, is of value in many and almost indispensable in not a few. While this help has been used for some years by a few of us, we must thank Lynch for making it more widely known. It has been blamed for some of the accidents of bronchoscopy, though I think, unjustly.

While the fluoroscope is of undoubted value, it must not be forgotten that you cannot always tell the depth at which the body and forceps are, and you may fail to grasp the body when apparently they are in contact, or the reverse.

The bronchoscopist should, therefore, depend upon his vision through the bronchoscope after the body is found if it is at all possible for him to see it. The forceps may be in the wrong bronchus if small, and yet appear to be in actual contact. This has occurred in a case of mine and I have also been told by the fluoroscopist that the forceps were not in contact when I could actually see the body in the grasp of the forceps.

Foreign body removal is, after all, simply a mechanical procedure, and requires a mechanical mind probably to a greater degree than any other surgical procedure. It also requires constant practice both on a manikin of some sort and on patients, if we expect to succeed in removal with the smallest amount of trauma.

The shifting of foreign bodies is known to occur even for days after the body is aspirated. It may be found to change if the patient is examined at intervals, and has been found in a different bronchus on the same or opposite side after being located by skiagraph. Among the most difficult cases are those that shift after they are seen through the bronchoscope, but they can usually be cornered by applying the end of the bronchoscope and the forceps. Movement of the bronchi with respiration may confuse the operator and cause him to lose sight of the object unless it is pinned down with the bronchoscope. Johnson and Wasson have called our attention to this as noted in x-ray examination. Secretions may obscure the object, but can be removed

either with suction tube, sponges, or by using Jackson's tube with the suction tube incorporated in the wall. I have always preferred the suction tube to the sponge. I have known a patient to be almost asphyxiated by the operator's using the tube (esophagoscope) without the side opening for breathing.

Overriding objects does not happen so frequently in the trachea or bronchi as in the larynx and esophagus, but it has occurred and is usually due to using a tube that does not fill the anatomical tube. This may happen if the larynx is badly swollen or we may have subglottic edema present before operation.

Jackson has found that many failures are due to the wrong application of forceps and he called attention to the fact that we must have space sufficient for the application of both forcep jaws without including mucous membrane or other important structures. We must use forceps that will fit the object and not slip. If the body is larger than the lumen of tube it can be removed with the tube, but must be kept in contact with the lower end to prevent the constrictors' removing it from the bronchoscope. While these are all self-evident they are apparently overlooked all too frequently.

The diagnosis and treatment of tumors of the bronchi have been reported by Yankauer, Freudenthal and others. Bronchial asthma has been treated by means of the bronchoscope with good results by a number of bronchoscopists.

Yankauer was the first to call our attention to the value of the bronchoscope in the treatment of lung abscess and he devised a method of treatment which has given good results in his hands and with modifications in the hands of others.

Recent reports of Lynah and Stewart and the author in the treatment of lung abscess and bronchiectasis have stimulated investigation along this line.

Whether bronchiecstasis may be caused by foreign bodies or not is as yet an unanswered question. That pulmonary abscess is caused in this way cannot be doubted. Whether the abscess which follows the aspiration of an infected foreign body, or which is due to the trauma produced infected by organisms already present, is different from the abscess produced in any other way, is a question which is still open to discussion.

The fact that a patient in whose bronchus a foreign body has lodged and later been successfully removed has a subsequent bronchitis or pneumonia which is either found first upon the side in which the foreign body found lodgment, or only upon that side, would lead us to believe that these tissues do not always return to normal.

With the present wave of what seems to be pulmonary abscess following operations upon the throat, it is apparently time for us to act, not only in preventing but in attempting to cure or relieve these cases before they have become general surgical problems.

That many lung abscesses are discovered following tonsillectomy cannot be doubted, and that they may be due to aspirated caseous masses, blood clots or other foreign substance is also true. However, many give a history of previous pulmonary lesions. Lynah reported recently that he had found blood in the trachea of tracheotomized patients who had their tonsils removed, although all precautions had been taken to prevent this. In view of this it is easy to see how infection may be aspirated, and the only wonder is that it does not occur more frequently.

A case of foreign body seen within the last year was a tack in the lower right bronchus. It was thought best to give ether. As eleven hours had elapsed since eating, there was apparently no danger from food, but two pieces of beans were aspirated and had to be removed before the tack could be seen.

Granulation tissue or strictures of scar tissue at the opening of the bronchus due either to irritation by a foreign body or infectious material must be removed before complete drainage can be obtained from abscess or bronchiectasis cavities.

The aspirating tube with closed end is best for removing pus, as with this the liability of injury to vessels is less. An accident of this kind which was followed by profuse hemorrhage occurred in one of my cases.

Aspiration of practically all lung abscess and bronchiectasis cases should be undertaken before radical chest operations are performed, as the mortality from these operations is 35 to 40 per cent. The use of the bronchoscope would in no way increase this.

The effect of anesthetics upon mortality is probably not so little as the tendency to prolong an operation under a general anesthetic decreases the chances of recovery whether working in the bronchi or esophagus, especially in the former.

The fear of an anesthetic and the fact that the internist and surgeon consider bronchoscopic examination as a major procedure have deterred many patients from receiving the benefit of this complete examination.

It must be said that many bronchoscopists have either looked upon it in the same way or have at least encouraged the other members of the profession in their belief.

When we see how little reaction there is to the ordinary examination and how grateful is the little patient who has been relieved, as at times are older ones, not only will we use fewer anesthetics, but we will examine more cases routinely and probably save more lives on account of making earlier diagnoses.

The mortality from foreign bodies, when Killian began his work, was 50 per cent. It was reduced to 40 per cent in the first five years and, according to a recent statement by Jackson, is now about 10 per cent, which will be greatly reduced as more men gain experience.

DISCUSSION

Dr. Robert Caldwell, Little Rock, Ark.—I wonder sometimes in cases of soft foreign body, such as peanuts, peas and grains of corn, if it would not be better to do a tracheotomy first and then a low bronchoscopy. In the last year I have had three cases that have caused me much trouble. In them I had to do a tracheotomy, then remove the foreign body through the tracheotomy wound. In all three of these cases as I got the foreign body to the larynx it seemed that the larynx pulled it off my forceps. I thought I had a good hold in each case, but as I pulled out the foreign body stuck in the larynx. In each I did a tracheotomy and removed the foreign body with much ease through the tracheal wound.

Dr. W. L. Simpson, Memphis, Tenn.—Three or four little things have helped me in doing bronchoscopies. The first is suction. You all have several different lengths of suction tubes, but if you have just the right size it will help you probably more than any other one thing.

There is the question of nausea. I do not like to operate for foreign body without an anesthetic. I know that is not the opinion of Jackson, but it seems to me that most men can work better that way, unless they have a very efficient corps of assistants. Even then sometimes I think we do less harm to the patient by using an anesthetic.

Another thing is that in all high foreign bodies I do not use the bronchoscope until I use the Lynch apparatus. It helps to use this suspension apparatus in putting the scope into the trachea. There is no use fishing around trying to get into the trachea. Put in the suspension apparatus, and insert the tube into the trachea.

Dr. Martin E. Taber, Dallas, Tex.—I have been interested in bronchoscopy, and had my first case in 1908. I am anxious to get from some of these men an honest statement of their mortality. There are men in Texas doing bronchoscopy. One man did five, and four of them died. There is something wrong either with his technic or his instrument. We used to be taught that it was easy, and at first I thought it was an easy thing to go into the bronchus or esophagus. I did most of my work with the old modification of Bruenings instrument. I use a Jackson vise for foreign body in the trachea.

I have had a good many cases in the last eleven or twelve years, and they come faster and faster. But there is no money in it, and I do not want to be known as a bronchoscopist. I prefer ear, nose and throat, and do that as a side line.

A tracheotomy is very rarely justified after a low bronchoscopy. You are forced to do it in some cases that have been traumatized where there is beginning edema.

But I am anxious to have some of the men here discuss their mortality. I have had a record at the hospital that seemed out of line. I have had three deaths in 139 cases.

Dr. John T. Crebbin, New Orleans, La.—In doing this work, the question of anesthesia is an important one. We have practically discontinued local anesthesia, preferring general, in all cases. With the use of general anesthesia, one has complete relaxation of the patient. There is no coughing or gagging, and this facilitates the operator in locating and extracting the foreign body. For these reasons, I strongly urge a greater use of a general anesthetic.

We have not suspended the head of a patient over the table for several years. We use the suspension appliance as heretofore, but have the head resting on the table. In this way there is not much tension on the muscles of the neck, and one is enabled to do better work than in the old method of hanging the head over.

It is remarkable how long a foreign body may remain in the bronchi, and apparently do no harm. The case may be treated for pneumonia or bron-

chitis, and suddenly a foreign body is discovered.

Emphasis has been laid on the use of suction. I believe that we cannot emphasize this too strongly, for the use of an applicator with a pledget of cotton attached is rather dangerous.

Quite recently, while working on a foreign body in the bronchi, my assistant handed me one of the swabs, which became loosened in the bronchi. I then had two foreign bodies. Fortunately, I was able to remove both with but little trouble. However, this taught the lesson to use cotton swabs with great care, and to be sure they are securely attached before introducing them into the tube. Wherever possible, it is advisable to use suction.

The question of size and length of tubes is one to be considered, especially when the foreign body is located in the esophagus. A tube long enough to reach the stomach is the one to select, unless you know the exact location of the foreign body. By using these tubes, the necessity of withdrawing and introducing a longer one will be obviated.

Again, the larger the diameter of this tube, the more one will be able to see, and there will be greater freedom in working.

Dr. John H. Foster, Houston, Tex.—I think we ought to protest against the use of low bronchoscopy. Practically every case that is done by low bronchoscopy could be done by upper bronchoscopy.

There is a marked tendency, as Dr. Caldwell has brought out, for the larynx to grab the foreign body and pull it off the forceps. This can be avoided if we keep the body close against the tube in withdrawing it.

Dr. Jackson, as we all know, does this work in children without anesthesia. It is my opinion that for the average worker anesthesia is preferable in children for the reason that unless one is extremely skillful in manipulating the bronchoscope there is more or less trauma and some danger from edema following it. I have used a general anesthetic for a good many years in children three months of age and up and have passed the bronchoscope without trauma sufficient to cause postoperative edema necessitating tracheotomy. I have seen cases that required a tracheotomy for the edema following the use of the tube without anesthesia.

Dr. E. H. Cary, Dallas, Tex.—As I live in a city where we draw patronage from great distances, children are frequently brought in who have a good deal of dyspnea, with an enormous amount of mucus down in the bronchus, and while the child is sent in for the removal of a foreign body, the indications that there is one present really are very indefinite.

I have recently had two such cases. The x-ray pictures did not show much to go on, yet the indications were sufficient to justify going down to see if something could be found and removed. In these two cases I tried sucking out the viscid mucus which blocked the bronchi and which the air cells had lost their capacity to expel. If this condition had not been relieved it would undoubtedly have brought about the death of the patient. After getting rid of this viscid mucus and clearing the bronchi and lungs, counter irritation was started around the lungs, and in both cases (in which it developed there was no foreign body present) I was happy to see them make a good recovery.

Of course that starts a long train of thought as to what you could do with patients who have the bronchi and lungs filled with more or less viscid mucus; whether or not you could suck out and get rid of the blocking sufficiently to insure aeration, then through counter-irritation and such measures save those who are usually doomed, patients who are blue and practically gone from pneumonia, the type of influenza which takes that turn, or any similar disease. These two cases meant a great deal to me, and I think this procedure offers a rare opportunity for service in helping desperate cases.

Dr. William W. Potter, Knoxville, Tenn.—Some of us are possibly too enthusiastic about bronchoscopy. We see Dr. Jackson and Dr. Lynch in their clinics and we see how easy it is for them to do this operation, and we go home and attempt it ourselves. I want to decry the promiscuous use of the bronchoscope. I believe that it is a bad thing for the inexperienced and unskilled man to attempt this operation. We get a case once in six months, and because we happen to have a Jackson bronchoscope we proceed immediately to undertake the operation, when if we had the right interest of our patient at heart we would send him to a man who we know can do this operation because of his experience in this line.

Dr. Joseph Brown Farrior, Tampa, Fla.—I have had seven cases of this kind, one a safety pin lodged in the esophagus, at the fifth rib, in a seven months old baby. Fortunately we removed it with good results.

One case was a boy five years of age, brought in the day of the accident. The family would not submit to any effort on my part to remove the seed, and of course the x-ray showed nothing. They brought him back in a week, and there was slight infiltration, showing the seed in the right bronchus. (I have attempted to use the bronchoscope, and I hope I may never do another case.) I failed by instruments and even with the bronchoscope to see the body. The child was suspended under general anesthesia, but I could not locate the seed, and I do not know that I ever was in more of a dilemma. I knew the seed was there, and the parents knew it was there. In this dire extremity I called for a 24 French catheter, which practically occluded the opening into the trachea and gave air just sufficient for the child to live. That produced a vacuum and I pulled the seed into the bronchus, where I could see it. I reached for the seed, but the forceps failed to get it, and it slipped back down out of sight. I introduced the catheter again, and on active respiration I produced a vacuum and pulled the seed back far enough for me to see and remove it.

I should like to hear how many of these unembedded foreign bodies you can get without instruments.

I should also like to hear how much collapsibility or negative pressure you can put on the lungs.

Dr. W. T. Patton, New Orleans, La.—I should like to emphasize what Dr. Potter has said about so many men doing bronchoscopy without equipment. Time and again I have asked men what they had, and they probably would have a Jackson tube, a mouth gag and a pair of forceps. It is ridiculous to try to do bronchoscopy unless you have a complete outfit.

Dr. Carmody (closing).—Tracheotomy was spoken of. In two cases, one an early case, I had to do a tracheotomy after bronchoscopy. In one case I happened to have an abscess, and when I opened the trachea about three-quarters of an ounce of pus came out. Apparently in that case the membrane of the trachea was dissected loose, so the abscess extended entirely around the trachea. Subglottic edema is the thing that most frequently requires a tracheotomy. Subglottic edema is due to over-manipulation, and in my case, which was fatal, I am very sure there was over-manipulation.

My mortality up to the present time, in 200 bronchoscopies, is about 1 per cent. I have lost two cases.

The slipping off of the forceps from the foreign body has been mentioned, and Dr. Jackson has called our attention to the fact that the foreign body will come out provided it is kept in contact with the tube. In the larynx you want your foreign body in the same plane with the cords. If it is longer in one diameter turn it so that it is anterior-posterior when it comes through the larynx.

As to suction, your suction tubes should be of several sizes and lengths, and if you wish to remove secretions, use the tube with the closed end. If you wish to remove peanuts or small particles, the tube with the open end is preferable. I was glad to hear Dr. Farrior report his case, because suction helped in that case. I do not know how much negative pressure the lung will stand, so that care must be exercised in its use.

Dr. Crebbin spoke of Lynch's method, which they use in New Orleans. We use Lynch's method of suspension. We do not completely hang the patient as we did formerly.

Dr. Taber spoke of tubes and lights, and that is important, because you get into the habit of using one type of tube. Formerly I used the Bruening tube, but now use the Jackson and prefer it.

There are cases when we should use an anesthetic, but there are a great many cases when we should not. I do not see how you can get less shock from anesthetic than without it, because in most cases you get a great deal more shock from the anesthetic. I believe the anesthetic adds to our mortality, because we may get an edema of the lungs from which the patient may die. Nature takes care of the infection. Jackson has said that practically all of these cases recover after the removal of the foreign body. However, my attention was called by our pediatrists to the fact that the lung in which a foreign body has lodged is the lung that is most affected subsequently by bronchitis, and often in pneumonia this lung is affected first. Formerly Dr. Jackson used nothing but sponges, but in the last two years he is using the suction apparatus.

The loss of a sponge was mentioned. That happened to me in one case, and now I always see that it is fastened on myself and do not leave it entirely to the nurse.

Dr. Foster said he did not believe a low bronchoscopy was necessary in any case. I disagree, because in this one case mentioned it was necessary. The trachea was almost closed by the abscess, and only a small tube would go down. The Doctor says he means uncomplicated cases, and of course that would be different. I have never used intubation in a case of this kind.

Some one spoke of not having experience in doing these things. We should do as Jackson tells us—work on a manikin of some kind or with an ordinary rubber tube before we really attempt to do the operation. We would have much better results if we did this.

Southern Medical Journal
JOURNAL OF THE
SOUTHERN MEDICAL ASSOCIATION

Published monthly by the Southern Medical Association, Empire Building, Birmingham, Alabama. Annual subscription $3.00. Single copies 25c each.

Entered as second-class matter at the Postoffice at Birmingham, Alabama, under Act of March 3, 1879 Acceptance for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized December 20, 1921.

DR. M. Y. DABNEY, Editor
C. P. LORANZ, Secretary-Manager

Vol. XV JULY 1922 No. 7

EDITORIAL DEPARTMENT

SOUTHERN MEDICAL ASSOCIATION
Sixteenth Annual Meeting, Chattanooga, Tennessee, November 13-16, 1922

TENDENCY TOWARD OPERATIVE OBSTETRICS

Previously,[1] the JOURNAL has had occasion to refer to the increasing operative tendency in obstetrics which has beset the country. The correspondence elicited by that editorial was mainly of a defensive character. The fact still remains that in many branches of surgery that which can be tolerated by the patient is often erroneously confused with that which is necessary. Sometimes it is found not even to be tolerated.

More recently Polak,[2] of Brooklyn, has discussed the prevailing tendency toward operative interference in obstetrics. Says he:

"The operative furor has surely invaded obstetrics, when even the physiological processes of normal labor are disturbed, and a normal sized child, in normal position, passing by a normal mechanism through an ample pelvis, with dilatable soft parts, is interfered with; the head disengaged, a version done and delivery accomplished by breech extraction on the plea that the woman is saved an hour or two of second-stage pains.

"Other enthusiasts, either for their own convenience or to save the woman an hour or so of suffering, are routinely applying forceps when the head has reached the ischial spines, and the cervix is fully dilated; while others have so widened the indications for cesarean section that the operation is being employed daily on patients who present no real obstetric indication for it, simply because it is the most convenient way to get the baby out."

Polak compares

"the operative incidence in a series of a thousand consecutive cases, which have had intelligent and painstaking prenatal study—where each labor is conducted with a full knowledge of existing conditions, on the principle of aseptic intelligent expectancy, and where intervention is done, not withheld, on proper indications, solely in the interest of the mother or child— * * * with 1113 cases delivered by one man,[3] an acknowledged expert who has deliberately interfered with the normal processes of labor as a routine procedure."

Among the series of 1000 cases analyzed by Polak there were 2.2 per cent forceps; 0.5 per cent version; cesarean section, 0.8 per cent; and a total infant mortality of 2.5 per cent.

In Potter's group of 1113 cases there were 3.5 per cent forceps; 82 per cent versions; and 7.1 per cent cesarean sections, which yielded a fetal mortality of 6.7 per cent, or almost three times Polak's series.

Polak also takes up specifically the question of cesarean section, which he considers is greatly overused and is productive of a higher morbidity and mortality than that from the ordinary abdominal operations done for other pelvic conditions. He analyzes the results of 2200 cesarean sections, of which 200 were from his own clinic (Long Island College Hospital) and 2000 from other American clinics.

The tables show a maternal mortality from 2.9 to 14 per cent, depending upon the time in labor when operation was performed and the amount of vaginal infection.

Williams,[4] of Baltimore, reports 183

(1) The Abuse of Cesarean Section (Editorial). JOURNAL, 1920, xiii, 828-9.

(2) Polak, John O.: The Present Status of Operative Obstetrics Referring to the Abuse of Cesarean Section. Surg., Gyn. and Obst., 1922, xxxiv, 566-73.

(3) Potter, I. W.: Trans. Ass'n. Obst., Gyn. and Abd. Surg., 1920.

(4) Williams, J. Whitridge: A Critical Analysis of Twenty-One Years' Experience with Cesarean Section. Trans. Med. Ass'n State of Alabama, 1921, pp. 205-38.

cesarean sections in his clinic among approximately 20,000 deliveries, or an incidence a little under 1 per cent. There was a gross mortality of 5.46 per cent. In part, he says:

"Cesarean section is not the ideal treatment for eclampsia and is indicated only in the rare instances in which the cervix is rigid and undilated and venesection has not led to improvement. * * * * * * * * * *

"Generally speaking, I believe that cesarean section should play only a very minor part in the treatment of placenta praevia in the hands of competent obstetricians, and I contend that the use of the rubber bag will give almost ideal results. That this has been the case in our hands is shown by the fact that only one maternal death occurred in the last 40 cases treated by that method. * * * * * * * * * *

"It is my conviction that the operation [cesarean section] is being abused throughout the country, and if accurate statistics as to its results were available that it would be found to be accountable for many unnecessary maternal deaths.

"It should be recognized, while it is frequently the easiest manner of delivering the patient in the presence of various abnormalities, that it is not always the safest, and that ideal results are obtained in only a few clinics."

"SOUTHERN NUMBER" OF ARCHIVES OF PEDIATRICS

The Archives of Pediatrics has paid the South a courtesy by devoting an entire issue to the subject of Southern children. It may be pointed out with pride that the articles, all of which are well worth while, are by men who stand high in the ranks of the Southern Medical Association, several of them being officers or former officers in it.

Dr. L. R. DeBuys, of New Orleans, has a paper on another phase of a subject on which the SOUTHERN MEDICAL JOURNAL recently published an article by him, namely, the "Management of the Newly-Born Service." He describes in detail the operation of his unique service, the need for which he well demonstrated in his previous contribution.

Dr. W. A. Mulherin, Vice-President of the Southern Medical Association and last year's Chairman of the Section on Pediatrics, discusses the frequency among Southern babies, and the particular effect upon them, of many common diseases. He considers the Southern baby particularly happy and fortunate in his environment. He says:

"With an abundance of sunshine, and an unlimited amount of outdoor fresh air, a decided increase in maternal nursing in the South, sanitary conditions constantly improving, a well organized body of determined physicians working for his three inherent rights—life, health and happiness—may he not be justified in his contentment?"

The first Chairman of the Section on Pediatrics of the Southern Medical Association, one of the youngest sections of the Association, was Dr. William Weston, of Columbia, S. C. His article upon "Some Southern Feeding Problems" deals with infant feeding in our warm Southern climate. In it he considers the effect upon the white baby of his close proximity to the little-cared-for colored child. He stresses the importance of nursing the baby during the first year and particularly the feeding of lactic acid milk (with soups, cereals, beef juice, etc.) during the second. He especially recommends lactic acid milk from March 15 to November.

Dr. E. C. Mitchell, of the Pediatrics Department of the University of Tennessee, and Dr. J. J. Shea, Secretary of the Section on Eye, Ear, Nose and Throat of the Southern Medical Association, have a paper on "Nasal Sinus Disease in Children." This, they consider more common than is usually realized by the pediatrician and general practitioner. Their consideration of the symptoms, etiology, etc., of this trouble are very instructive as well as their case reports, which deal with children from less than one year of age upward.

Another well-known Southern pediatrician, Dr. R. M. Pollitzer, of Charleston, writes on "Everyday Pediatrics," emphasizing the need of a thorough physical examination of every child seen. He re-

counts a few illustrative cases encountered in ordinary practice, comprising tonsillitis, malaria, pyelitis, diphtheria, and syphilis.

Dr. J. D. Love, ex-Chairman, and Dr. O. W. Hill, the present Secretary, of the Section on Pediatrics of the Southern Medical Association, also have most creditable articles, the former upon "Medication in Infancy and Childhood," the latter "Case Reports," which include autopsy findings.

"During the past two decades," Dr. Love says, and his statement is very much in line with the modern tendency to a revival of therapy, "the pediatrician has greatly neglected the science of pharmaco-therapy.

"Children lend themselves more readily to drug medication than do adults, since, for the most part, but one organ is markedly involved and a qualitative diagnosis is not so essential; and since most often the disturbances of children are functional rather than organic. * * *

"In the writer's opinion, one of the most pernicious practices now in vogue is the very frequent administration of pluriglandular substances for the many diverse and obscure nervous disorders of sick children. * * * * * *

"These criticisms apply equally to the employment of mixed vaccines for almost every affection incident to childhood."

Dr. Frank C. Neff's report upon scarlet fever immunization is worth the careful consideration of every pediatrician. He cites cases, limited in number because of the obvious difficulties of experimentation upon human subjects, of individuals successfully immunized against scarlet fever, by a method whose general principles are well known. He has not followed exactly, however, the previous work.

Dr. S. R. Lustberg and Dr. J. A. K. Birchett discuss what our Northern friends always feel belongs especially to the South, "The Breast-Fed Pellagrin: Relation to the Avitaminoses."

In summary, this would be a most excellent number for any periodical to issue. Not only has the editor exercised good judgment in the selection of his contributors, but they in turn have chosen very timely subjects for consideration. The issue contains a sufficient variety of material to interest men of all branches of the profession. It is distinctly a credit both to its publishers and to the South.

AMONG THE NEW JOURNALS

"Of writing many books there is no end." And the same may be said of the publishing of periodicals. The public seems capable of absorbing any number of them,—good, bad and indifferent.

It is a pleasure, however, to welcome two new-comers to the list of medical journals published in our territory, both for the excellence of their initial numbers and for the guarantee which stands back of them because of the well known reputation of their publishers, the Williams & Wilkins Co., of Baltimore.

I

Archives of Occupational Therapy began with the February number of this year. It is to be a bimonthly, the official organ of the American Occupational Therapy Association. The chief incentive for establishing this journal is to furnish a clearing house for papers along this line which formerly were scattered through a number of publications many of which were obscure and not easily accessible to those most interested in them. The leading article in this number is on "The Philosophy of Occupation Therapy," by Dr. Adolf Meyer, Professor of Psychiatry at Johns Hopkins. The Editor of the *Archives* is Dr. Wm. R. Dunton, Jr., of Towson, Md., who has as Associate Editors a long list of well-known authorities on the subject in this country and abroad.

II

Medicine is the title of the other neophyte in medical journalism. It is a quarterly whose first appearance is the May number. Its expressed purpose is to provide authoritative and exhaustive reviews

in the fields of internal medicine, neurology and pediatrics. For example, this issue contains but two papers,—one on "The Therapeutic Use of Digitalis," by Dr. G. Canby Robinson, covering 138 pages, and the other, "The Treatment of Meningococcus Meningitis," by Dr. Kenneth D. Blackfan, occupying 74 pages. The opportunity afforded an investigator to elaborate his work in full will be appreciated by all who have been forced to abbreviate their writings in order to conform to the conventional length of an average medical paper. This opportunity for accommodating monographic contributions will be greatly appreciated. The Editors of *Medicine* are Dr. David L. Edsall, of Harvard, and Dr. John Howland, of Johns Hopkins, their Associate being Dr. Paul D. White, of the Massachusetts General Hospital.

Both these journals, arising as they do from the sheer need of such publications, most surely merit, and will receive, the support of the progressive element of the profession. The JOURNAL extends to both a warm welcome and its best wishes for an honorable and permanent existence.

Book Reviews

The Practice of Medicine. By A. A. Stevens, A.M., M.D., Professor of Applied Therapeutics, University of Pennsylvania; Professor of Therapeutics and Clinical Medicine, Woman's Medical College of Pennsylvania; Visiting Physician, Philadelphia General Hospital; Consulting Physician, St. Agnes' Hospital, Philadelphia. With 1106 pages. One Plate and 31 Text Figures. Philadelphia and London: W. B. Saunders Co., 1922. Cloth, $7.50 net.

Dr. Stevens in his "Preface" states that the book is written primarily for the medical student and practicing physician and that it purposes to present them with the most necessary points in pathology, diagnosis and treatment. In this he has been successful, for the book is up to date, clearly and conservatively written. His sections on treatment are clear as to definite lines of therapy which have proved successful in his own experience.

It is somewhat unusual to find in a book of this character strychnin advised as a substitute for digitalis in the treatment of cardiac failure in pnuemonia. Also he advises the use of aromatic spirit of ammonia in the treatment of acute heart failure which is not in accord with the [illegible]

The above are only minor faults, and as a whole the work will lend itself very nicely for a text book use and as a reference guide to the practitioner.

The Writing of Medical Papers. By Maud H. Mellish, Editor of the Mayo Clinic Publications. 12mo of 157 pages. Philadelphia and London: W. B. Saunders Co., 1922. Cloth, $1.50.

This important subject is one upon which the author has written before and to a good purpose. The little book under consideration, therefore, is a more complete discussion of the question with added topics. The art and science of medicine, demanding as they do close observation and precision, one would think, would render physicians very exact in other particulars, notably in their writings. Yet medical men are notoriously careless and inaccurate in that respect.

The manuscripts sent medical editors would prove shocking had not others equally poorly prepared been received so often as to render them commonplace. Dozens of articles arrive with the author's note: "This was written in a great hurry and is possibly full of mistakes. Change it to suit yourself." The most carefully written manuscripts have to be edited, whereas those which are thrown together after the fashion of shorthand dictation, violate all rules of composition and good usage. It is not fair for the contributor to expect a busy editor to write the paper for him. If one is not familiar with the construction of a medical paper then one cannot do better than to purchase Mrs. Mellish's very helpful little volume.

Few physicians there are who do not prepare an article for publication occasionally. Almost to a man they need the information contained in this book. Buy it, we pray you, to add clearness and force to your papers if not to lessen the poor editors' cares!

A few errors occur such as one is apt to find in a first edition. For example, on page 139, the Southern Medical Journal is listed twice, once as being published in Mobile, and again as at Louisville, neither of which is correct, Birmingham having been the publication office for some years.

Mrs. Mellish is to be congratulated upon the great amount of information which she has collected in so small a space and upon the charming manner in which she has presented it. The splendid editing of all publications from the Mayo Clinic likewise bear evidence of her literary ability and artistic taste.

1921 Collected Papers of the Mayo Clinic, Rochester, Minn. Octavo of 1318 pages, 392 illustrations. Philadelphia and London: W. B. Saunders Co., 1922. Cloth, $12.00.

"The Collected Papers of the Mayo Clinic" is one of the really valuable contributions of the year, not only the 1921 collection, but that of every year. The results of the work at the Mayo Clinic are always awaited with interest by the rest of the country. As for the present volume, the papers cover a wide range of subjects, too numerous for individual mention. Suffice it to say that they are by no means confined to surgery, but include all branches of medicine including much experimental work.

Book on the Physician Himself, from Graduation to Old Age. By D. W. Cathell, M.D. This is the Vastly Improved Crowning Edition. 326 pages. Baltimore: Published by the Author, Emerson Hotel, 1922.

This is a book of an unusual kind by a man who has had many years' experience with men and medicine. It might almost be called a book upon the etiquette of being a physician, except that it goes more deeply into his morals. It contains advice to young men starting out as to education, office equipment, general bearing, writing of original articles, keeping accounts, making collections, and many other subjects pertaining to the physician.

The style is clear and charming, and contains something, perhaps the homely details entered into, reminiscent of that of Pepys' "Diary."

New and Nonofficial Remedies, 1922. Containing Descriptions of the Articles Which Stand Accepted by the Council on Pharmacy and Chemistry of the American Medical Association on January 1, 1922. 441 pages. Chicago: American Medical Association, 1922. Paper, $1.50.

The book is in fact the report of the Council on Pharmacy and Chemistry of the American Medical Association and is of real use at a time such as the present when so many new and poorly understood drugs are brought to the attention of the physician. It serves a most useful purpose and is one of the books that should be on the standing order list of all members of the medical profession.

The Psychic Health of Jesus. By Walter E. Bundy, Ph.D., Associate Professor of English Bible, DePauw University. 295 pages. New York: The Macmillan Co., 1922.

Hirsch, Binet-Sangle and others have published detailed volumes to demonstrate that Jesus was a real person, mentally unsound, and to analyze his acts on the basis of modern psychology. Because "Christianity has been helped along in the world more by its critics than by its too sympathetic friends," Bundy, a confessed Christian, quotes largely, in translation from works of Jesus' pathographers for the purpose both of refuting them and of coming to a "newer and fresher understanding of Jesus."

He deals with the various attitudes toward Jesus of those who have attempted to prove him an ecstatic, an epileptic, a paranoiac, or a case of nerves, and concludes with answers to their arguments.

The book will be absorbing to students of theology, to psychiatrists, and to the thoughtful layman.

An Introduction to Dermatology. By Norman Walker, LL.D., M.D., F.R.C.P., Physician for Diseases of the Skin, The Royal Infirmary, Edinburgh. Seventh Edition, with 81 Plates and 80 Illustrations. New York: William Wood & Co., 1922.

This book has no taint of the stiff, pompous style many medical writers affect. The author's manner of writing is intimate and personal, and after reading an hour one feels as if he knew him. Nearly every page is rich with striking phrases; e.g., "Keep syphilis in mind, but do not get it on the brain."

The chapter on "Dermatitis Venenata," probably the most interesting of its kind in the language, illustrates well Walker's ability at narration. Those on "Psoriasis" and "Scabies" are outstanding examples of his tendency to suggest the details of treatment: "It takes four ounces of sulphur ointment to cover the body of an average sized man once . . . give a pound . . . . " etc.

The book is genuinely good.

The Early Diagnosis of the Acute Abdomen. Oxford Medical Publications. By Zachary Cope, B.A., M.D., M.S., Lond., F.R.C.S. England, Surgeon to Out-Patients, St. Mary's Hospital, Paddington; Surgeon to the Bolingbroke Hospital, Wandsworth Common; Late Hunterian Professor, Royal College of Surgeons. With 223 pages, illustrated. New York: Oxford University Press, 1921.

This deals with the general principles of diagnosis, history taking and examination of the patient, then with special conditions. These include appendicitis, perforation of gastric and duodenal ulcers, acute intestinal obstruction, cancer of the large bowel, ectopic gestation, peritonitis, etc.

The print is large, the phraseology clear, and several new points of diagnosis are introduced or given their proper emphasis.

The Healthy Child from Two to Seven. A Handbook for Parents, Nurses and Workers for Child Welfare. Containing the Fundamental Principles of Nutrition and Physical Care, Including Sections on Child Nature, Training and Education, and Safeguarding the Nervous System During the Pre-School Years. By Francis Hamilton Maccarthy, M.D., Assistant Professor of Diseases of Children, Boston University. With 232 pages. New York: The Macmillan Co., 1922.

This is a simply written book covering the nutrition of the child and different phases of its daily life, such as its sleep, punishment, common accidents and diseases. The diets recommended are conservative in comparison with the present trend of pediatrics. For example, it recommends the continuation of the night feeding (10 p. m.) till about the second year. However, undoubtedly most mothers could bring up splendid children if they followed it literally.

New Growths and Cancer. Harvard Health Talks. By Simeon Burt Wolbach, Shattuck Professor of Pathological Anatomy, Harvard University. 95 pages. Illustrated. Cambridge: Harvard University Press, 1922.

This pocket volume contains one of the "Harvard Health Talks" on cancer. It is very elemental and as far as possible non-technical. Written for the laity, it is necessarily a story simply told.

It will be of interest to the general public and to physicians desiring a model for presenting the cancer problem to a general audience.

The Newer Knowledge of Nutrition. The Use of Food For the Preservation of Vitality and Health. By E. V. McCollum, Ph.D., Sc.D., Prof. of Chemical Hygiene, School of Hygiene and Public Health, Johns Hopkins University, Baltimore, Md. 449 pages. 2nd Edition, entirely rewritten. New York: The Macmillan Co., 1922.

McCollum is a pioneer worker in experimental nutrition and because of his voluminous research work, he speaks with an authority that will command attention. Much of the formerly hazy, speculative knowledge of nutrition has been subjected to careful analysis, so that which was chaff has been discarded. This book deals with many of the problems of nutrition, and presents accepted and known facts about them. The nutritive value of proteins from various sources, dietary proportions of individual food-stuff, vegetarian diets and the like, form instructive reading. Vitamins come in for full and complete discussion, and really the last word on the subject is found here. Deficiency diseases form a large part of the text. An interesting chapter is "The Nursing Mother As a Factor of Safety in Nutrition of the Suckling," showing the effect of faulty diet upon the capacity of the lactating mother to produce normal milk. Diets of different nations are discussed.

Practical Infant Feeding. By Lewis Webb Hill, M.D., Junior Assistant Physician to the Children's Hospital, Boston; Assistant in Pediatrics, Harvard Medical School. 483 pages. Illustrated. Philadelphia and London: W. B. Saunders Co., 1922.

The reviewer finishes this work with a dual feeling: first, that infant feeding has become a very popular subject with the average general practitioner, judging by the number of works supplied for his consumption; and second, the excellence and practical nature of the efforts of this popular author.

The query had arisen on beginning to read this book for review, why such a multiplicity of authors and treatises on infant feeding? The answer suggests itself in a further question, why not a multiplicity, if the standard is as well upheld as by this author?

In tracing the historical development of infant feeding within recent times, full and deserved credit is given his former townsman, Thomas Rotch, for his percentage feeding. While he gives due credit to Czerny, Finkelstein and others for still further development of the intricate subject, he finds no need to abandon the great contribution of Rotch. He supplements the percentage method with the calories method as corrective.

Illuminating and helpful is his review and discussion of the interrelations of the problems of feeding with those of the physiology and pathology of digestion, and with those of classification. Pellagra comes to mind at once as an illustration of the interrelation of these problems and incidentally as an illustration of the difficulty inherent in the problems. It offers through its intestinal symptoms problems in the relation of feeding, of pathology and physiology and of classification. The newer knowledge concerning vitamins and the bearing of this knowledge upon the triple problem above indicated, is set forth and its bearing discussed.

The art of feeding the breast baby, the artificially fed baby, the baby ill with intestinal disorders of various kinds, the baby ill with nutritional and infectious disorders, all are given and discussed in a practical and helpful way. The work gives all the ear marks of an experienced infant feeder as well as of an experienced teacher, of the disseminator of the knowledge gathered from many and varied sources. It can be recommended as a practical, helpful, up-to-date work on this popular subject.

The Oxford Index of Therapeutics. Edited by Victor E. Sorapure, M.B., CH.B., F.R.C.S. Oxford Medical Publications. 1126 pages. New York: Oxford University Press. Cloth, $12.00.

"The purpose of this work is to extend the interchange of ideas and of methods of practice of each of the great branches of the English speaking practitioners of medicine." This is the first edition, and is a most complete index to the best practice in therapeutics and the advances made during last year. The contributors are leading men in various specialties, and the work, therefore, represents the leading thought of both continents. It is planned primarily for service to the general practitioners of medicine, to present direct and practical advice that has been found useful in private practice. The four sections deal with (1) The Methods, (2) The Agents, (3) Pharmacological Summary of the Agents, and (4) The Index. It is a very elaborate work, but is well edited and is worth while for study.

A Treatise on Glaucoma. By Robert Henry Elliot, M.D., B.S. (Lond.), Sc.D. (Edin.), F.R.C.S. (Eng.), Lieut.-Colonel I.M.S. (Retired). Late Superintendent of the Government Ophthalmic Hospital, Madras; Late Professor of Ophthalmology, Medical College, Madras; and Late Fellow of the University of Madras; Lecturer in Ophthalmology, London School of Tropical Medicine; Ophthalmic Surgeon to the Seamen's Hospital Society, and to the Hospital for Tropical Diseases, Endsleigh Gardens, London. With 213 illustrations and frontispiece. Second Edition. New York: Oxford University Press. Cloth, $8.00.

The author with characteristic modesty touches but lightly on his invaluable contributions to our present state of knowledge as to the causes, the histo-pathology and treatment of glaucoma, giving generous credit to other workers in this field. But the fact remains that Col. Elliot is the most generally recognized authority on glaucoma in the world today.

This the second edition is not merely a monograph, it is a text book and in the author's own words "much more". Admitting that there are many questions in connection with glaucoma yet unanswered, he has endeavored to place before the profession all of the knowledge at our disposal in orderly sequence from the anatomy of the parts concerned through the entire field of intra-ocular pressure, the physical and pathological conditions which control or modify it, the etiology, diagnosis, classification of glaucoma, and both the medical and surgical treatment. Each section has been brought up to date (January, 1922) and beyond question this is the most valuable contribution to our knowledge of glaucoma in all its phases, in the history of medicine.

Vital Factors of Foods. Vitamins and Nutrition. By Carleton Ellis, S.B., F.C.S., and Annie Louise Macleod, Ph.D., Vassar College. 391 pages. Illustrated. New York: D. Van Nostrand Co., 1922. Cloth, $5.00 net.

No subject of medicine has created more universal interest than the discovery of the so-called vitamins, certain life-giving and disease-preventing bodies, so essential to growth and health. A proper understanding of foods, fuel food values, the amount and kind of foods, should be appreciated by every intelligent individual. Such valuable facts are being taught by the authors at Vassar College, where the book is used. It should have a wide and general circulation. The subjects of elementary principles of nutrition, vitamins, dietary factors other than vitamins, their distribution, etc., are authoritatively presented. Likewise the diseases due to deficient diets, rickets, beriberi, scurvy, pellagra, are carefully described. An excellent chapter is written on what to eat from the vitamin standpoint. The use of vitamins in clinical medicine is the subject of another chapter. In the Appendix the authors outline the distribution of vitamins A and B, in foods, vegetables, meats, etc. The work is logical and well written and contains elaborate references and quotations from recognized authorities on the subject. It is a work that the public will also appreciate.

Nutrition and Specific Therapy. By Dorothy E. Lane, S.B. 185 pages. New York: The Macmillan Co., 1922.

This book is a compilation of lectures delivered to students, which represents the author's own conviction, experience and research study. It is a practical discussion of a subject now attracting considerable attention. It is concisely written, well prepared, and in a practical form. Such topics as food preparation; effect of cooking on food; meat, mixed or vegetarian diet; **auto-intoxication**; intestinal flora; diet in common diseases; infants' diets; childrens' diet; vitamins, are well presented. A few healthful recipes are given. It is just the kind of book one can read in a short time and from it learn some of the ways to be healthy.

Advanced Suggestion (Neuroinduction). By Haydn Brown, L.R.C.P., Etc., Edin.; Fellow, Royal Society of Medicine. Second Edition. 402 pages. New York: William Wood & Co., 1922. Cloth, $3.50.

The book elaborates the author's opinion of the importance of treating the psychic side of all cases. He goes into the importance of treating the effects produced upon the mind of pathological processes in other parts of the body. The methods used are clearly described, but these are scattered through a larger number of pages than is needed. The book contains some valuable information, but the constant reports of the previous failures of "consultants" and "specialists" and the later brilliant results of the author in these cases is fatiguing. Also the constant repetition of the first personal pronoun singular throughout the text greatly detracts from the charm of the book.

The Physiology of Gout, Rheumatism and Arthritis as a Guide to Accurate Diagnosis and Efficient Treatment. By Percy Wilde, M.D., Physician to the Lansdown Hospital, Bath. 31 text figures and 229 pages. New York: William Wood & Co., 1922. Cloth, $3.50.

The author takes the position that these conditions are due a retention of lactic acid in the form of lactophosphate of lime.

He stresses the importance of the skin as an excretory organ for lactic acid, and he also calls attention to the importance of the body temperature in the elimination of lactic acid.

His method of treating these cases is by the so-called pyretic treatment. Moist heat is used for this purpose. The use of large doses of the salicylates he condemns as he considers the febrile reaction of the patient, as well as the acute inflammatory conditions in the joints, a means of Nature to rid the system of the lactic acid.

The author's extensive experience with this class of cases should make us seriously consider his treatment.

Southern Medical News

ALABAMA

The Sellers Hospital, Anniston, destroyed by fire recently, will be rebuilt and equipped at a cost of approximately $75,000. The first floor will be exclusively for negroes and the other floors for white patients.

At the recent meeting of the Alabama State Medical Association, resolutions were adopted urging all members of the Association to endeavor to obtain $200 each as a contribution toward the Gorgas Memorial at Panama and Tuscaloosa.

Mrs. M. Alexander Reedy, R.N., has opened the Highlands Hotel and diet kitchen at 1130 South Twelfth Street, across the street from the South Highlands Infirmary, Birmingham.

Dr. William P. McCrossin, Jr., and Miss Leonora Marie Hassinger, both of Birmingham, were married April 26.

Deaths

Dr. Ira Lee Miller, Alabama City, aged 31, died at Wylam May 3.

Dr. Marion Joseph Bancroft, Mobile, aged 44, died suddenly April 20 from heart disease.

ARKANSAS

Pope County Medical Society has elected the following officers: Dr. H. S. Drummond, President; Dr. Jerome Wright, Vice-President; Dr. L. D. Berryman, Secretary-Treasurer.

At the recent meeting of the Arkansas State Medical Association the following officers were elected: Dr. Robert Caldwell, Little Rock, President; Dr. Ernest A. Purdum, Hot Springs, Dr. Jefferson D. Southard, Fort Smith, and Dr. Lorenzo R. Evans, Mount Pleasant, Vice-Presidents; Dr. Robert L. Saxon, Little Rock, Treasurer; Dr. William R. Bathurst, Little Rock, Secretary. Hot Springs was chosen as the meeting place for 1923.

Plans have been completed for a $200,000 hospital at St. Edward's Infirmary, Fort Smith.

The Arkansas Tuberculosis Association had its annual meeting in Little Rock May 16.

Dr. G. E. Cannon, Hope, has been elected to fellowship in the American College of Physicians and Surgeons.

Columbia County Medical Society has reorganized. The following officers were elected: Dr. W. P. Cooksey, President; Dr. W. H. Horn, Taylor, Vice-President; Dr. Hugh Longino, Secretary.

Dr. Ralph Aregood Law and Miss Frances Louise Weber, both of Little Rock, were married May 2.

Deaths

Dr. Alfred M. Hathcock, Harrison, aged 67, died May 2.

Dr. John W. Bowers, Barcamp, aged 60, died February 18 from cerebral hemorrhage.

DISTRICT OF COLUMBIA

The Army Medical School, Washington, will have a new modern fireproof home in the Walter Reed General Hospital reservation. The sum of $500,000 has been appropriated by Congress for this purpose.

The International Congress of Ophthalmology was held in Washington April 25-26. The following officers were elected: Dr. George E. deSchweinitz, Philadelphia, President; Dr. Luther C. Peter, Philadelphia, Secretary.

For the purpose of bringing before the public and medical profession the work of occupational therapy accomplished in the various hospitals and institutions throughout the City, the District of Columbia Occupational Therapy Association opened an exhibit in Washington, April 24-29.

The U. S. Veterans' Bureau held a conference on vocational rehabilitation in Washington May 26-27.

FLORIDA

The Bureau of Communicable Disease, directed by Dr. George A. Dame, has entered upon a state-wide campaign of education in regard to smallpox and vaccination. Motion pictures and lectures will be used by the district health officers to combat a very active anti-vaccination propaganda which has been carried on for some time.

The Flagler System of Railways and Hotels has, through the efforts of Captain W. H. Gillette, of the U. S. Public Health Service, attached to the Bureau of Communicable Disease, adopted the Industrial Plan for combating venereal disease among its several thousand employes and their families. Pamphlets will be distributed, pictures shown and many lectures made.

Cooperating with the State Board of Health, the Florida Public Health Association has been holding a series of tuberculosis clinics in the State. The woman's clubs assisted in this work. The advisory nurse of the State Public Health Association had charge of the clinics.

Through the efforts of Dr. Joseph Y. Porter, Sr., City Health Officer of Key West, thousands of school children and others have recently been vaccinated. The city is now practically immune to smallpox.

Deaths

Dr. Albert Josiah Taylor, Orlando, aged 55, died May 19 following an operation for cholelithiasis.

Dr. Charles W. Hains, Tampa, aged 62, died March 28.

GEORGIA

Baldwin County Medical Society has elected the following officers: Dr. B. McH. Cline, Milledgeville, President; Dr. W. H. Allen, Milledgeville, Vice-President; Dr. H. D. Allen, Jr., Milledgeville, Secretary-Treasurer.

Bulloch County Medical Society has elected the following officers: Dr. R. L. Cone, Statesboro, President; Dr. J. M. McElveen, Brooklet, Vice-President; Dr. F. F. Floyd, Statesboro, Secretary-Treasurer.

Burke County Medical Society has elected the following officers: Dr. W. C. McCarver, Vidette, President; Dr. W. H. Kelly, Waynesboro, Vice-President; Dr. H. A. Macaulay, Waynesboro, Secretary-Treasurer.

Cobb County Medical Society has elected the following officers: Dr. W. E. Benson, Marietta, President; Dr. Will Humphries, Acworth, Vice-President; Dr. L. L. Blair, Marietta, Secretary-Treasurer.

Coffee County Medical Society has elected the following officers: Dr. J. R. Smith, Douglas, President; Dr. D. H. Meeks, Nicholls, Vice-President; Dr. T. H. Clark, Douglas, Secretary-Treasurer.

Colquitt County Medical Society has elected the following officers: Dr. H. T. Edmondson, Moultrie, President; Dr. W. L. Bennett, Moultrie, Vice-President; Dr. W. W. Massey, Moultrie, Secretary-Treasurer.

Dougherty County Medical Society has elected the following officers: Dr. R. J. Pearson, Albany, President; Dr. W. S. Cook, Albany, Vice-President; Dr. Y. C. Lott, Albany, Secretary-Treasurer.

Floyd County Medical Society has elected the following officers: Dr. Geo. B. Smith, Rome, President; Dr. J. L. Garrard, Rome, Vice-President; Dr. M. M. McCord, Rome, Secretary-Treasurer.

Franklin County Medical Society has elected the following officers: Dr. W. W. Cornog, Lavonia, President; Dr. E. T. Pool, Carnesville, Vice-President; Dr. B. T. Smith, Carnesville, Secretary-Treasurer.

Glynn County Medical Society has elected the following officers: Dr. J. A. Dunwoody, Brunswick, President; Dr. R. E. L. Burford, Brunswick, Vice-President; Dr. J. P. Harrell, Brunswick, Secretary-Treasurer

Madison County Medical Society has elected the following officers: Dr. L. E. Roper, Comer, President; Dr. J. L. Baker, Carlton, Secretary-Treasurer.

Newton County Medical Society has elected Dr. W. D. Travis, Covington, Secretary-Treasurer.

Polk County Medical Society has elected the following officers: Dr. E. H. Richardson, Cedartown, President; Dr. G. M. White, Rockmart, Vice-President; Dr. P. O. Chaudron, Cedartown, Secretary-Treasurer.

Putnam County Medical Society has elected the following officers: Dr. V. H. Taliaferro, Eatonton, President; Dr. E. F. Griffith, Eatonton, Vice-President; Dr. S. A. Clark, Eatonton, Secretary-Treasurer.

Richmond County Medical Society has elected the following officers: Dr. Geo. L. Traylor, Augusta, President; Dr. R. V. Lamar, Augusta, Vice-President; Dr. Jos. Akerman, Augusta, Secretary-Treasurer.

Spalding County Medical Society has elected the following officers: Dr. T. I. Hawkins, Griffin, President; Dr. Webb Conn, Griffin, Vice-President; Dr. W. S. Howard, Experiment, Secretary-Treasurer.

Terrell County Medical Society has elected the following officers: Dr. J. G. Dean, Dawson, President; Dr. R. R. Holt, Parrott, Vice-President; Dr. S. P. Kenyon, Dawson, Secretary-Treasurer.

Thomas County Medical Society has elected the following officers: Dr. C. K. Wall, Thomasville, President; Dr. H. M. Moore, Thomasville, Vice-President; Dr. S. L. Cheshire, Thomasville, Secretary-Treasurer.

Tift County Medical Society has elected the following officers: Dr. N. Peterson, Tifton, President; Dr. J. M. Price, Tifton, Vice-President; Dr. Mack P. Sporman, Tifton, Secretary-Treasurer.

Ware County Medical Society has elected the following officers: Dr. W. M. Folks, Waycross, President; Dr. D. M. Bradley, Waycross, Vice-President; Dr. W. D. Mixon, Waycross, Secretary-Treasurer.

Washington County Medical Society has elected the following officers: Dr. H. A. Herman, Sandersville, President; Dr. T. B. King, Sandersville, Vice-President; Dr. N. J. Newsom, Sandersville, Secretary-Treasurer.

The Medical Association of Georgia will inaugurate a state-wide health campaign. A committee on health and public instruction, consisting of three members, has been appointed.

Dr. Iverson C. Case, formerly Chief of Orthopaedics, Veterans' Bureau, Washington, D. C., will resume practice of orthopedic surgery, with offices in Georgia Savings Bank Building, Atlanta.

The Association of Secretaries of the Medical Association of Georgia held its first meeting May 2 at Columbus. Dr. Thomas H. Smith, Valdosta, was elected President; Dr. Homer L. Barker, Carrollton, Secretary.

The Georgia State Medical Association, at its recent meeting in Columbus, elected the following officers: Dr. J. M. Smith, Valdosta, President; Dr. P. A. Tatum, Columbus, Vice-President; Dr. Allen H. Bunce, Secretary-Treasurer. The next meeting will be held in Savannah.

The Dunson Hospital, LaGrange, which has been closed for six months being remodeled, was opened with a reception on May 30. The hospital has sixty beds, two operating rooms and is modern in every respect.

The LaGrane Medical Society was organized June 1. The following officers were elected: Dr. Henry R. Slack, President; Dr. Emory R. Park, Vice-President; Dr. E. C. Herman, Secretary-Treasurer. The main object of the society is to establish a first class medical library.

Under the auspices of the Child Welfare Council plans are being made to establish prenatal clinics for training mothers and the training and examination of midwives, in an effort to reduce infant and maternal mortality. These clinics will be established in several cities and counties of the state. Dr. Thomas D. Walker, Macon, will have charge of the work in the Macon district.

Deaths

Dr. Robert I. Fox, Brunswick, aged 48, died suddenly April 27.

Dr. St. Joseph Buford Graham, Atlanta, aged 57, was found dead in his laboratory May 2 from the effects of poison taken by mistake.

KENTUCKY

The Southwestern Kentucky Medical Association met recently and the following officers were elected: Dr. Stanley Mullins, Wingo, President; Drs. P. H. Stewart, Paducah, W. A. Page, Barlow, Vice-Presidents; Dr. Vernon Blythe, Paducah, Secretary; Dr. Frank Boyd, Paducah, Treasurer.

Construction has been started on the buildings to house the physiotherapy and occupational therapy departments at the government veterinary hospital, Dawson.

Dr. Arthur T. McCormack, Louisville, has been elected Secretary of the State Board of Health, succeeding his father, Dr. J. N. McCormack, deceased.

Dr. Heman Humphrey, Louisville, has been appointed Chief Surgeon of the Louisville Railway Company and the Louisville and Interurban Railroad Company; Dr. L. Ray Ellars, Louisville, has been appointed Associate Surgeon.

At the recent meeting of the Kentucky Valley Medical Association held in Berea the following officers were elected: Dr. R. L. Collins, Hazard, President; Dr. H. C. Anderson, Booneville, Vice-President; Dr. H. D. Grant, Hazard, Secretary-Treasurer. The next meeting will be held at Hazard in May 1923.

A new $300,000 hospital will be erected in Louisville, to be operated by the evangelical churches of the city.

Headquarters of the Medical Veterans of the World War, heretofore in St. Louis, will be moved to Louisville. This was decided at a meeting of the organization held in St. Louis recently. At the meeting Dr. A. T. McCormack, was reelected President; Dr. P. E. Blackerby, Treasurer and Assistant Secretary.

Ballard County Medical Society has elected the following officers: Dr. W. A. Ashbrook, President; Dr. J. D. Rollins, Vice-President; Dr. G. L. Thompson, Secretary-Treasurer.

Breckenridge County Medical Society has elected the following officers: Dr. J. A. Sandbach, President; Dr. R. W. Meador, Vice-President; Dr. J. E. Kincheloe, Secretary-Treasurer.

Boyd County Medical Society has elected the following officers: Dr. W. L. Gambill, President; Dr. C. B. Preston, Vice-President; Dr. A. J. Bryson, Secretary; Dr. G. W. Moore, Treasurer.

Campbell-Kenton County Medical Society has elected the following officers: Dr. J. A. Davis, President; Dr. W. J. Thomasson, Vice-President; Dr. J. H. Helmstedt, Secretary; Dr. R. Lee, Treasurer.

The Southwestern Kentucky Medical Association, at its recent meeting in Paducah, passed resolutions on the death of Dr. J. N. McCormack, who was an honorary member of that Association.

Deaths

Dr. Joseph Nathaniel McCormack, Louisville, aged 75, died at his home May 4 from cerebral hemorrhage.

Dr. Hugh D. Rodman, Bardstown, aged 79, died May 4 following a long illness.

Dr. Thomas T. Baker, Amandaville, aged 82, died April 26.

Dr. William J. K. Lavin, Walnuthill, aged 52, died suddenly May 8 from acute indigestion.

Dr. Charles Kerns, Sr., Covington, aged 86, died April 30 following a long illness.

Dr. Emerson E. Newcom, Blackford, aged 56, died March 10 from chronic nephritis.

Dr. Frederick Kellum Blair, Ashland, aged 33, died in a hospital in Louisville, May 31.

Dr. Frederick Vernon Matlock, Salem, aged 55, died May 10 at the Riverside Hospital, Paducah, after several weeks illness.

Dr. N. D. Graham, Georgetown, died May 16.

Dr. Benjamin F. Bennett, Fullerton, aged 80, died recently.

LOUISIANA

Dr. C. C. Bass, New Orleans, has been elected Vice-President of the American College of Physicians.

Dr. Robert A. Strong, New Orleans, was elected President of the Air Medical Association held in conjunction with the American Medical Association in St. Louis recently.

The Louisiana State Medical Association announces that it has purchased the New Orleans Medical and Surgical Journal, utilizing in part funds accumulated for the entertainment of the American Medical Association in 1920. At the annual meeting of the Mississippi State Medical Association it was voted to accept this publication as the official journal of that society.

Masons laid the cornerstone of the new $300,000 Shrine Hospital, Shreveport, on May 12. This hospital will be for the treatment of crippled children.

Deaths

Dr. Charlie C. Crawford, Bienville, aged 42, died April 24.

MARYLAND

Plans are being made to build a nurses' home at the Maryland General Hospital.

A site to be known as "Happy Hills," near Mount Washington, has been donated and plans are being made to open a new hospital for convalescent children in July. Dr. William H. Welch has been made president of the hospital.

A tuberculosis clinic at Highlandtown, Baltimore, has been opened. The clinic is under the direction of Drs. John E. O'Neill, B. T. Baggott and Lyman S. Abbott.

The Alumni Association of the Johns Hopkins Medical School held a reunion in Baltimore May 5-6. The following officers were reelected: Dr. Thomas R. Brown, President; Dr. Walter Steiner, Secretary; Dr. J. Albert Chatard, Treasurer. Plans for a new club for graduates of the Johns Hopkins Medical School were discussed and arrangements made for the opening of a club on Broadway, near the hospital.

Members of the class of 1907, University of Maryland Medical School, met in Baltimore recently and celebrated their fifteenth anniversary of their graduation. At this meeting members of the class voted to donate a modern operating table as a memorial to the late Dr. Frank Martin, former professor of Surgery in the University.

A Health Demonstration Unit is being conducted in Washington County by the Johns Hopkins School of Hygiene and the Rockefeller Foundation. Dr. Ralph Gregory Beachley, formerly of the U. S. Public Health Service, has been appointed assistant to the director.

Dr. John S. Fulton, Secretary of the State Department of Health, Baltimore, is formulating plans for the organization of the Bureau of Child Hygiene, to be organized in accordance with provisions of the Sheppard-Towner law and legislation passed by the last general assembly of Maryland. The personnel will consist of a director and ten graduate nurses; the nurses to be distributed through the state. These plans are preliminary. The plan for the permanent organization will be prepared with the advice of the man chosen to direct the work.

A ten day campaign was recently conducted in Montgomery County in an effort to raise $30,000 for the benefit of the County General Hospital, Sandy Springs.

Dr. Eveleth Wilson Bridgeman and Miss Mary Cushing Whitridge Williams, both of Baltimore, were married April 29.

Dr. Ipolitas B. Bronushes and Miss Edna Marie Droppelman, both of Baltimore, were married May 23.

Deaths

Dr. George Alexander Fleming, Baltimore, aged 59, died April 18 from heart disease.

Dr. Elmer Clay Fahrney, Hagerstown, aged 60, died April 23 at the Washington County Hospital.

Dr. Zachery Duvall Ridout, St. Margarets, died May 8.

MISSISSIPPI

At the annual meeting of the Mississippi State Medical Association the following officers were elected: Dr. S. W. Johnson, Vicksburg, President; Dr. T. M. Dye, Clarksdale, Secretary. The next meeting will be held in Jackson.

On May 12 the King's Daughters Hospital, Gulfport, erected at a cost of $105,000, was dedicated.

A neuropsychiatric hospital, for veterans of the World War residing in Mississippi, will be erected on the grounds of the East Mississippi Insane Hospital, Meridian, at a cost of approximately $60,000.

The fund of $100,000 for the erection of a hospital at Beauvoir, has increased to $120,000, by an appropriation of $20,000.

Deaths

Dr. L. M. Dampeer, Sr., Crystal Springs, aged 91, died April 30.

Dr. Horton Frizell, Deasonville, aged 54, died April 28 at the Baptist Hospital, Jackson, following an operation.

MISSOURI

At the meeting of the American Medical Association held in St. Louis the following officers were elected: Dr. R. L. Wilbur, Stanford, Calif., President-elect; Dr. Willard Bartlett, St. Louis, Vice-President-elect; Dr. Alexander R. Craig, Chicago, re-elected Secretary; Dr. Austin A. Hayden, Chicago, Treasurer, succeeding Dr. William Allen Pussey, Chicago, who had held the office thirty years.

The Missouri State Medical Association has elected the following officers: Dr. Arthur R. McComas, Sturgeon, President; Dr. H. C. Powers, Joplin, Dr. F. I. Ridge, Kansas City, Dr. Wenzel C. Gaylor, St. Louis, Dr. Encinas C. Callison, Kirksville, and Dr. Louis M. Edens, Cabool, Vice-Presidents; Dr. Edward J. Goodwin, St. Louis, Secretary; Dr. J. Franklin Welch, Galesburg, Treasurer. The next annual meeting will be held in Joplin.

(Continued on page 38)

Stomachic Rebellion

is *not* in the clinical picture when you use BENZYLETS.

That is an out-standing consistently constant clinical fact when these gelatin globules each carrying five minims of *medicinally pure* benzyl benzoate are used. At your druggist's in 24's.

Benzylets

non-narcotic, non-toxic
analgesic-antispasmodic
in pain and spasm of
unstriped muscles

SHARP & DOHME
Chemists since '60

WHEN YOU WANT

FLUIDEXTRACT CASCARA AROMATIC that is efficient, yet palatable SPECIFY

LIQUID CASCARA FLAVORED P-M CO

LIQUID CASCARA FLAVORED P-M CO is made from high grade bark, carefully aged before use, carefully debitterized, carefully extracted.

The satisfactory results, judged from your own and your patients' viewpoint, justifies our pride in this product.

PITMAN-MOORE COMPANY

INDIANAPOLIS, Chemists U. S. A.

(Continued from page 598)

The following have been appointed instructors in the St. Louis University School of Medicine: Dr. George Gellhorn, Professor of Obstetrics and Gynecology and Director of the department; Dr. William Kerwin, Instructor in Gynecology; Dr. William E. Sauer, Professor of Ear, Nose and Throat Diseases; Dr. John Green, Jr., Associate Professor of Ophthalmology; Dr. Edward H. Higbee, Assistant Professor of Ophthalmology; Dr. H. E. Hughes, Dr. Edward C. Spitze and Dr. Harvey D. Lamb, instructors in Ophthalmology; Dr. Otto V. Lief, Dr. Roy E. Mason and Dr. Hugo Reim, assistants in Ophthalmology; Dr. Richard Kring, Assistant in Dermatology; Dr. Harry Sandperl, Assistant in Surgery; Dr. Ulysses Eugene Hartley, Assistant in Genito-Urinary Diseases; Drs. Benjamin G. Haumesser and L. W. Schrieber, Assistants in Medicine.

Masons of the Grand Lodge have laid the cornerstone of the Fitzgibbon Memorial Hospital, to be erected at Marshall. Mr. Fitzgibbon willed his estate valued at $160,000 to the institution. $50,000 as an endowment was stipulated in the terms of the bequest.

The Board of Managers of the St. Louis Children's Hospital has announced that the Mary Culver Surgical Ward is filled, with a waiting list of 50. The Children's Hospital has establish a school at Ridge Farm, for physically handicapped children under its care, and an all-year teacher has been supplied by the Board of Education.

The Kansas City Health Commissioner has announced that physicians are to be paid $1.00 for each report on tuberculosis filled out and sent to the State Board of Health.

Memorial services for Dr. Young H. Bond, founder of the Marion-Sims College of Medicine in 1890, now known as the St. Louis University School of Medicine, were held at the University, May 25.

A new $125,000 chemistry building will be erected at the University of Missouri, Columbia.

Dr. E. I. Baird, Dr. E. L. Parker and Dr. J. E. Musgrave have been appointed members of the Board of Health, Excelsior Springs.

A fountain has been erected to the memory of Lieut. William T. Fitzsimmons, Kansas City, killed in France in 1917 by the explosion of a German bomb. Public donations of more than $3,000 has been subscribed for the erection of the William T. Fitzsimmons monument.

Dr. Caldwell Bernard, formerly of Senatobia, Miss., has taken charge of the Robert Koch Hospital, St. Louis.

Dr. Evarts A. Graham, Professor of Surgery, Washington University Medical School, St. Louis, has been appointed a member of a commission to investigate the dispensary system in England.

A campaign to raise $175,000 is being conducted by the Board of Hospitals and Homes of the American White Cross of the Methodist Episcopal Church for a hospital to be erected at St. Joseph.

Dr. Joseph Erlanger, Professor of Physiology, Washington University Medical School, was recently appointed a member of the medical fellowship board of the National Research Council.

Deaths

Dr. Dalton L. Phillips, Oak Grove, aged 55, died April 25 from influenza and pneumonia.

Dr. George W. Mingoes, St. Louis, aged 76, died April 29, following a long illness.

Dr. Henry Erhardt Livingstone, St. Louis, aged 43, died suddenly in church May 9 from heart disease.

Dr. Joseph Francis Nutz, Kansas City, aged 42, died suddenly May 4.

Dr. Thomas B. Cook, Rayville, aged 68, died April 30 from pneumonia.

Dr. Sherman Mills, Macks Creek, aged 50, died suddenly April 28 at Picher, Okla.

Dr. McDowell Botts, Mexico, aged 46, died April 24 at Lake City, Fla., from carcinoma of the arm, resulting from burns received while experimenting with the roentgen ray.

Dr. Thomas R. Thornton, Lees Summit, aged 78, died February 26.

Dr. William M. Smith, Springfield, aged 79, died April 24.

Dr. William W. Harris, Kansas City, aged 88, died April 19 from acute bronchitis.

Dr. Elizabeth A. Lohbeck, St. Louis, aged 55, died May 16.

(Continued on page 40)

Laboratories of

Drs. Bunce, Landham and Klugh

ATLANTA, GEORGIA

DEPARTMENTS

PATHOLOGY	BACTERIOLOGY and SEROLOGY	X-RAY and RADIUM
Allen H. Bunce, A.B., M.D., F.A.C.P.	George F. Klugh, B.S., M.D.	Jackson W. Landham, M.D.

These laboratories are equipped for making every test of clinical value in the diagnostic study of medical and surgical cases. Only standardized methods and technique are used.

In addition to the diagnostic study of cases there are adequate facilities for the x-ray and radium treatment of conditions in which these forms of treatment are indicated.

Fee lists and containers for pathological specimens and information in reference to x-ray and radium work furnished upon request.

Address

DRS. BUNCE, LANDHAM AND KLUGH,

Professional Bldg., 65 Forrest Ave., Atlanta, Ga.

Veronal and Veronal-Sodium

Hypnotics and Sedatives

Supplied by Winthrop Chemical Company, Inc., and conforming completely to

Original Bayer Standards

Therefore, absolute reliance can be placed upon their chemical purity and therapeutic efficiency.

How Supplied: Tablets, 5 gr., tubes of 10 and bottles of 100; Powder in ounces

Literature on Request

WINTHROP CHEMICAL COMPANY, Inc.
16-22 Hudson Street, New York, N. Y.

The Management of an Infant's Diet

Diarrhea of Infants

Three recommendations are made—

Stop at once the giving of milk.
Thoroughly clean out the intestinal tract.
Give nourishment composed of food elements capable of being absorbed with minimum digestive effort.

A diet that meets the condition is prepared as follows:

Mellin's Food	**4 level tablespoonfuls**
Water (boiled, then cooled)	**16 fluidounces**

Feed small amounts at frequent intervals.

It is further suggested:—As soon as the stools lessen in number and improve in character, gradually build up the diet by substituting one ounce of skimmed milk for one ounce of water until the amount of skimmed milk is equal to the quantity of milk usually given for the age of the infant; also that no milk fat be given until the baby has completely recovered.

Mellin's Food Company, Boston, Mass.

(Continued from page 38)

NORTH CAROLINA

The North Carolina State Medical Association has elected the following officers: Dr. John Wesley Long, President; Dr. Frederic M. Hanes, Greensboro, Dr. Thomas C. Johnson, Wilmington, and Dr. Benjamin L. Long, Hamilton, Vice-Presidents; Dr. Lewis B. McBrayer, Sanatorium, Secretary-Treasurer. Asheville was selected as the next meeting place.

The Board of County Commissioners held a meeting in Raleigh recently and adopted a health budget for the ensuing year which carries $38,838 for health work and $6,850 for mosquito control. The City will pay 75 per cent of the health budget and the county government will pay one half of the mosquito control appropriation, and the City the other half.

Dr. K. P. Bonner, Morehead City, Secretary of the State Board of Medical Examiners, has been appointed director of the bureau of maternity and infant hygiene of the State Board of Health.

Bids have been opened for the construction of the new $125,000 building for the Lincoln Hospital for colored people, Durham.

Caldwell-Catawba-Lincoln County Medical Society has elected the following officers: Dr. Jacob H. Shuford, Hickory, President; Dr. M. Caroline McNairy, Lenoir, Vice-President; Dr. Wm. P. Speas, Hickory, Secretary-Treasurer.

Rutherford County Medical Society has elected Dr. Frank W. H. Logan, Rutherfordton, President.

The North Carolina Public Health Association has elected the following officers: Dr. Alexander C. Bulla, Winston-Salem, President; Dr. Frank M. Register, Raleigh, Secretary.

Wake Forest College School of Medicine, Wake Forest, it has been reported, is entitled to receive the principal of a trust fund, amounting to $1,375,000, created by Jabez A. Bostwick, director of the Standard Oil Company, in 1892.

The building to be used as a hospital by the Asheville Normal School is being remodeled at an approximate cost of $10,000.

Dr. Foy Roberson and Dr. Baird U. Brooks, Durham, have been elected members of the City Board of Health.

Dr. Alonzo Myers, Charlotte, has received his second medal from the French government for his services during the World War. He was recently decorated with the Medaille d'Honneur des Epidemies at Camp Bragg, Fayetteville, by General Pershing.

Deaths

Dr. Thomas A. Matthews, Castalia, aged 54, died April 29 following a long illness.

Dr. Charles H. Barron, Rocky Mount, aged 82, died March 17.

Dr. William P. Horton, Northwilkesboro, aged 55, died May 6.

Dr. George M. Bell, Wakefield, aged 66, died May 18.

OKLAHOMA

The Oklahoma State Medical Association has elected the following officers: Dr. McLain Rogers, Clinton, President; Dr. Ralph V. Smith, Tulsa, President-elect; Dr. Edmund S. Ferguson, Oklahoma City, Dr. William A. Tolleson, Eufaula, and Dr. Ernest B. Dunlap, Lawton, Vice-Presidents; Dr. Claude A. Thompson, Muskogee, Secretary-Treasurer-Editor. The next meeting will be held in Tulsa.

St. Anthony's Hospital, Oklahoma City, will have a new nurses' home; it will be modern and complete in every detail.

A contract has been awarded for the erection of the Soldiers' Memorial Hospital at Enid. The hospital will cost $200,000.

Dr. M. K. Thompson, Muskogee, will represent the State Medical Association at the Tenth International Congress of Otology in Paris.

Dr. Fred H. Clark, Oklahoma City, Secretary of the Medical Association of the Southwest for nearly seventeen years, has retired; and has taken up his work with the U. S. Public Health Service at the U. S. Veterans' Bureau Hospital No. 79, Dawson Springs, Ky.

Marlow Hospital, under the control of Dr. P. B. Hall, Marlow, was recently opened to the public.

Dr. Wm. Woodford Woody, Tulsa, has been appointed full-time City Health Officer.

The new $52,000 Methodist Hospital, Guthrie, was for-

(Continued on page 42)

CLINICAL LABORATORY OF DR. A. G. KELLEY
78 Forrest Avenue
ATLANTA

PATHOLOGICAL—
BIO-CHEMICAL—
BACTERIOLOGICAL

Special Courses given in advance work.

Your request for specific information on any point will be welcome.

"The endocrines are functionally basic to all principles of physiology, in fact, endocrinology is physiology, and no physician or surgeon can qualify adequately in any phase of medical science who is failing in knowledge of this subject. We must all be endocrinologists to practice successfully the art of healing, which is our paramount function." ("The Interrelation of the Endocrines and the Vegetative Nervous System," Wm. V. P. Garretson, New York Medical Journal, March 15, 1922.)

ORGANOTHERAPY

can be effective only through the use of dependable endocrine products. The reputation and integrity of the manufacturer is the physician's only guarantee of reliability of those organotherapeutic products for which there is no chemical or biological assay. Every manufacturing process and all our product is supervised by our Analytical and Research Department.

DESICCATED PITUITARY BODY, U.S.P.

DRIED SUPRARENALS, U.S.P.

DRIED THYROIDS, U.S.P.

SOLUTION OF POST-PITUITARY

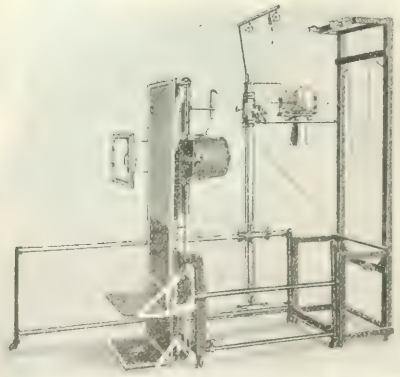
Insure potency and constancy of action by prescribing the products of

G. W. CARNRICK CO.

Manufacturers of Organotherapeutic Products

417-421 Canal Street, New York, N. Y.

IF IT IS NOT A "MEYER" IT IS NOT A MULTOSCOPE



Meyer Multoscope.

A MULTOSCOPE is the last word in a complete combination of at least five instruments in one unit.

Radiographic table,
Stereoscopic table,
Horizontal Fluoroscopy,
Vertical Fluoroscopy,
Trendellenberg Position, for Systoscopy.

All arranged with such minute care, that it can be used for one purpose or another on a moment's notice. It works like a clock [illegible] floor space is an item it has no superior.

It carries its own overhead wiring, and can be [illegible] any part irrespective of the position of your transformer.

ASK US FOR QUOTATIONS!

SOUTHERN REPRESENTATIVES:

Albin Hajos
P. O. Box 217
Atlanta, Ga.

P. G. Tucker
408 Ind. Life Bldg.
Nashville, Tenn.

FACTORY
1644-46 N. Girard St.
CHICAGO, ILL.

HECHT GRADWOHL TEST

Is made on every blood submitted without extra charge.

This test gives you information which increases the accuracy of your diagnoses.

SPINAL FLUID TESTS:

Wassermann
Pandy
Ross Jones
Lange
Cell Count

We urge practitioners to submit spinal fluid to aid in the diagnosis of syphilis. You will be surprised at the frequency of positive results in so-called "Asymptomatic" cases.

Write for *Spinal Puncture Outfit*, also Free Containers and Literature.

Gradwohl Laboratories

3514 Lucas Ave., St. Louis, Mo.

7 W. Madison Street, Chicago, Ill.

(Continued from page 40)

mally opened to the public on May 12; National Hospital Day.

Dr. Fred S. Watson, Okmulgee, has been appointed city and county physician to succeed Dr. John E. Bercaw.

Deaths

Dr. Joseph Melville Finney, El Reno, aged 53, died April 26.

Dr. William Pattison, Oklahoma City, aged 89, died March 21 from senility.

Dr. Monroe Archer Warhurst, Seminole, aged 57, died May 6.

Dr. Herman Amos Jergesen, Tulsa, aged 39, died May 25.

Dr. Almont Clark Hixon, Tulsa, aged 50, died May 11.

SOUTH CAROLINA

Marion County Medical Society has elected the following officers: Dr. E. M. Dibble, Marion, President; Dr. C. F. Bullock, Nichols, Vice-President; Dr. F. L. Martin, Mullins, Secretary.

The first clinic for ex-service men in South Carolina will be established by the Government at Columbia. It will open July 1 and Dr. Robert B. Durham, Columbia, will be in charge. The staff will be composed of twenty men, including ten full-time physicians.

Plans are being made to build a new hospital at Greer.

Dr. B. R. Brown has been appointed City Physician of Gaffney.

A new $10,000 infirmary will be built at State Park.

The South Carolina Pediatric Society held its first meeting in April. The following officers were elected: Dr. Richard M. Pollitzer, Charleston, President; Dr. E. A. Hines, Seneca, Secretary.

Under the auspices of the Greenville County Tuberculosis Association the new tubercular clinic for colored people

(Continued on page 44)

SPENCER MICROSCOPE

No. 44H

The Accepted Standard

OF THE

Medical Colleges of America

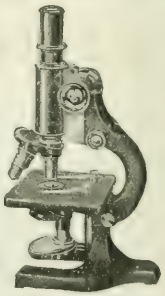
Used by Many Thousands Physicians Throughout the World.

Non-Competing Advantages:

I. A side fine adjustment with 34 threads of the screw always engaged instead of but **one** in other makes.

II. A side fine adjustment which has a "lateral travel"—an index showing its position.

These mechanical advantages with Spencer standard superior optics make this microscope an ideal clinical outfit.



Spencer Microscope, No. 44H

Fully equipped for laboratory work with two eyepieces, triple nose piece, three objectives, 16 mm., 4 mm., and 1.8 mm. immersion, quick-screw substage, Abbe condenser and iris diaphragm, **complete** in mahogany cabinet, $125.

SPENCER LENS COMPANY

Manufacturers

Microscopes, Microtomes, Scientific Apparatus.

BUFFALO, N. Y.

RADIUM

Standard Chemical Co.

Applicators of Approved Design.
Salts of Highest Purity
U. S. Bureau of Standards Certificate

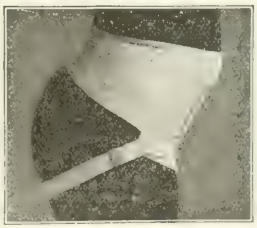
OUR SERVICE IS TRADITIONAL

Courses of Lectures at Pittsburgh
"The Physics of Radioactivity" *"Radium Therapy"*
William H. Cameron, M. D. Charles H. Viol, Ph. D.
L. V. Walker, A. B. Arthur L. Miller, B. S., Ch. E.

Information Mailed on Request

RADIUM CHEMICAL CO.
PITTSBURGH, PA.
BOSTON Little Building CHICAGO Marshall Field Annex Building NEW YORK 501 Fifth Avenue
SAN FRANCISCO Flood Building

TRADE MARK **STORM** TRADE MARK
Binder and Abdominal Supporter
(Patented)



TRADE MARK TRADE MARK

For Men, Women and Children.

For Ptosis, Hernia, Pregnancy, Obesity, Relaxed Sacro-Iliac Articulations, High and Low Operations, etc.

Ask for 36 page Illustrated Folder.

Mail orders filled at Philadelphia only—within 24 hours.

KATHERINE L. STORM, M.D.,
Originator, Patentee, Owner and Maker
1701 Diamond St. Philadelphia

When your Sphygmomanometer shows your patient has high blood pressure, what are you going to do?

Would you be willing to be convinced that Electro-therapy is of great value to you in many such cases?

We have a very special proposition to make physicians who want to investigate this subject.

Write us on your own letter head for full particulars if you are interested.

Thompson Plaster X-Ray Company
Leesburg, Va.

Thompson Plaster X-Ray Co.,
Leesburg, Va.

Send me full particulars re your special proposition as advertised in Southern Medical Journal

Name

Address
Enclose your letter head.

Neosalvarsan

(Neoarsphenamine-Metz)

is unsurpassed in reliability, trypanocidal efficiency and ease of administration.

Neosalvarsan is manufactured by the process used in preparing the original Ehrlich product and offers the physician the ideal means for treating the luetic.

HAMETZ LABORATORIES, Inc.
One-Twenty-Two Hudson Street, New York

Prevention like this:-

"It is certainly a pleasure to send you this renewal premium check, when I think how completely you shut up my blackmailer. I have not heard anything more from him and cannot too highly recommend your Company for the prompt and efficient manner in which you handled the threat. I practiced 21 years before I struck a snag. Yours truly."

Defense like this:-

"We want to express our appreciation for the services rendered us in our recent case.

"We feel that the success of this case is due entirely to the wonderful defense. As medical men we followed your technique very closely and we wish to say that, in our opinion, you have a talent for this type of cases unequalled by any one. Very truly yours."

Indemnity like this:-

"The Company shall indemnify the holder hereof against any judgment or loss imposed by law upon the holder hereof in any claim or suit defended by the Company. Such indemnity shall be limited to Ten Thousand ($10,000) Dollars in any one claim or suit, and Thirty Thousand ($30,000) Dollars in all claims and suits arising hereunder, such indemnity being in addition to the financial defense." Clause "G" of Our Contract.

For Medical Protective Service
Have a Medical Protective Contract.

The Medical Protective Co.
of
Fort Wayne, Ind.

(Continued from page 42)

opened April 19 at St. Lnke's Colored Hospital, Greenville. The clinic will be opened on Wednesday afternoons from 3 to 5.

All county health departments are establishing free clinics at rural schools for the inoculation of children. The State Board of Health is furnishing toxin-antitoxin free of charge.

Dr. J. Baxter Haynes, Spartanburg, and Dr. J. S. Matthews, Denmark, have been reappointed to the State Board of Medical Examiners.

Abbeville County Medical Society has elected Dr. Thomas O. Kirkpatrick, Lowndesville, President.

The degree of Doctor of Laws has been conferred on Dr. Robert Wilson, Jr., Dean of the Medical College of the State of South Carolina.

A series of twenty child welfare conferences, for the purpose of giving mothers in the rural districts an opportunity to inform themselves of the problems of child hygiene, are being held in various rural sections of Greenville County Department of Health.

Work on the $50,000 new wing to be erected at the Baptist Hospital, Columbia, will be started soon.

Dr. Richard K. Allison and Miss Susan Fitzsimmons, both of Columbia, were married May 1.

Dr. Earle Paul Knotts, Orangeburg, and Miss Marjorie Todd, Denton, Md., were married May 3.

Deaths

Dr. Wiley H. Young, Clinton, aged 63, died May 13 from cerebral hemorrhage.

Dr. Theron Earl Roe, Tigerville, aged 34, died suddenly May 11 from cerebral hemorrhage.

Dr. Wiley Harold Young, Clinton, aged 63, died May 13 from cerebral hemorrhage.

TENNESSEE

Middle Tennessee Medical Association has elected the following officers: Dr. W. H. Witt, Nashville, President; Dr. J. O. Walker, Franklin, Vice-President; Dr. H. H. Shoulders, Nashville, Secretary-Treasurer.

East Tennessee Medical Association has elected the following officers: Dr. W. H. Taylor, New Market, President; Dr. L. M. Scott, Jellico, Dr. J. R. Nankivell, Athens, Vice-Presidents; Dr. G. Victor Williams, Chattanooga, Secretary-Treasurer.

Giles County Medical Society has elected the following officers: Dr. G. D. Butler, President; Dr. A. J. Lancaster, Vice-President; Dr. Joe B. Wright, Secretary; Dr. R. E. Warren, Treasurer.

Dr. James T. Gwathmey, Nashville, was the recipient of a silver loving cup from the American Association of Anesthetics at their recent meeting in St. Louis. Dr. Gwathmey was the founder of the organization.

Robertson County Medical Association has disbanded because of lack of interest on the part of its members.

The new City View Hospital, Nashville, Dr. John W. Stevens, physician in charge, will be located in the middle of a tract of fifty acres of land, half a mile east of the old hospital on Murfreesboro Road. It will consist of four units—the men's building, the ladies' building, the residence and administration department of the physician in charge, and the dining room, kitchen and storage rooms. There will be 130 rooms with accommodations for about 60 patients. All buildings will be of brick. The cost of these buildings will be approximately $200,000.

Owing to a notice received that state aid will be withdrawn, as sufficient state and federal funds are not available, the venereal disease clinic, Chattanooga, which has been operated at a cost of $8,000 a year, of which the city paid two-thirds and the state one-third, was closed June 30.

Establishment of a medical unit in the R. O. T. C. at the University of Tennessee is the project of Maj. W. A. Raborg, Commandant.

Dr. Carrol Conway Turner and Miss Marguerite Rebecca Randolph, both of Memphis, were married recently.

Deaths

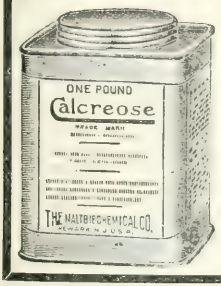
Dr. J. A. Crook, Jackson, aged 75, died June 12.

Dr. Jacob S. Shoff, Chattanooga, aged 66, died in New York, May 20.

(Continued on page 46)

CALCREOSE

"Colds" Even in summer people "catch cold." Colds often affect mostly the respiratory tract and the result is a distressing, annoying



Cough which is exceedingly resistant to treatment. In these cases CALCREOSE (calcium creosotate) has proved of value. It lessens cough and expectoration.

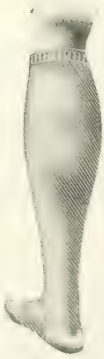
CALCREOSE can be given in comparatively large doses for long periods of time without any objection on the part of the patient. The indications for CALCREOSE are the same as those for creosote.

TABLETS POWDER SOLUTION

Write for literature and samples

The Maltbie Chemical Company
Newark, N. J.

Seamless Elastic Hosiery



For Weak, Swollen or Ulcerated Limbs, Varicose Veins, etc. These new stockings are woven in one piece and are without seams to chafe or bruise. They are shaped to the limb and exert a firm, even pressure on all parts of it.

We make all grades of Elastic Knee Caps, Anklets, Wristlets, Abdominal Supports, etc. Write for measurement blanks.

Trusses and Braces—Deformity Appliances

THE MAX WOCHER & SON CO.

Surgical Instruments—Office Furniture
19-27 W. 6th St. Cincinnati, O.

A word about Substitutes for ICHTHYOL

All the various substitutes differ from Ichthyol and from one another, according to the raw materials and the processes used in their manufacture.

They are not Ichthyol

Use Genuine Ichthyol
to insure Ichthyol-results

Sold only under the Merck seal and label in bottles and tubes

MERCK & CO., New York

BORCHERDT'S MALT SOUP-EXTRACT

A STANDARD

American Product

(Free From Alcohol)

For Preparing

MALT SOUP

Of recognized value in the treatment of infants suffering from marasmus, atrophy and malnutrition.

Typical Malt Soup results are obtained by using BORCHERDT'S MALT SOUP-EXTRACT, usual weight increase, marked change in character of stools and generally a satisfactory improvement. BORCHERDT'S MALT SOUP-EXTRACT is composed solely of Malt Extract and Potassium Carbonate in their correct proportion, according to the original Malt Soup Formula.

Samples and Literature on Request

BORCHERDT MALT EXTRACT CO.

217 N. Lincoln St. CHICAGO, ILL.

WILLIAM WOOD & COMPANY'S

MEDICAL BOOKS

Famous for 117 years for their practicability, high quality and reasonable prices.
Send for catalog and tell us what subjects you are specially interested in.

WILLIAM WOOD & CO.,
51 Fifth Ave., New York

Trade Mark Registered.

Gluten Flour

40% GLUTEN

Guaranteed to comply in all respects to standard requirements of U. S. Dept. of Agriculture.
Manufactured by
FARWELL & RHINES
Watertown, N. Y.

HIGH POWER

Electric Centrifuges

Send for Cat. Cn

INTERNATIONAL EQUIPMENT CO.

253 WESTERN AVE. BOSTON, MASS

(Continued from page 44)

Dr. William Frank Preston, Mooresville, aged 39, died May 4.

Dr. William Thomas Elmore, New Market, aged 66, died May 3 from heart disease.

Dr. William R. Seat, Lebanon, aged 75, died April 29 from influenza.

Dr. George A. Coors, Memphis, died May 12 at Rawlings, Wyo.

TEXAS

The Texas State Medical Association has elected the following officers: Dr. Joseph D. Becton, Greenville, President; Dr. Arthur C. Scott, Temple, President-elect; Dr. Foster R. Winn, Alvin, Dr. Charles P. Yeager, Kingsville, and Dr. James A. Daniels, Carthage, Vice-Presidents; Dr. Khleber H. Beall, Fort Worth, Treasurer; Dr. Holman Taylor, Fort Worth, Secretary-Editor. The next meeting will be held in Fort Worth.

At the recent organization meeting of the Association of Superintendents of State Hospitals and Sanatoriums, the following officers were elected: Dr. John Preston, Austin, President; Dr. John W. Bradford, Austin, Secretary. The meetings will be held quarterly at the various institutions in rotation; the next meeting will be held at the Northwest Texas Hospital for the Insane, Wichita Falls, August 8-9.

A new $30,000 city hospital will be erected in Ranger.

Dr. Mark P. Smartt, Manor, has been appointed Director of the Bureau of Communicable Diseases.

Dr. H. Phillip Hill, San Antonio, has resigned as Superintendent of the Robert B. Green Memorial Hospital, to enter private practice.

A new $200,000 city hospital will be erected at Houston.

Dr. Joseph A. Mullen has been re-elected President of the Houston Ophthalmological and Oto-Laryngological Society.

The new $73,000 addition to the Mercy Hospital, Evansville, will be operated by the Sisters of Mercy of Laredo.

Physicians and business men of Mercedes will establish a hospital in the city.

Deaths

Dr. Duncan Eugene Davis, Springfield, aged 63, died May 1 from acute indigestion.

Dr. James A. Hunter, Dallas, aged 78, died April 26.

Dr. Walter H. Allen, Marlin, aged 53, was drowned in the Brazos River at Marlin when a steel bridge collapsed May 16.

Dr. N. C. Proffit, Kingston, aged 74, was found dead in bed, April 5.

Dr. Daniel W. Montgomery, Concord, aged 72, died March 22.

Dr. R. Eugene Taylor, Lancaster, aged 62, died April 21.

Dr. William Newton Sneed, Sr., Fairfield, aged 77, died March 28.

Dr. John Starr Sappington, Fort Sam Houston, aged 31, died May 7 at West Point, Ga.

Dr. R. R. Ranspot, Lone Oak, aged 49, died April 26.

Dr. Claud B. Van Horn, Woodson, aged 65, died recently from diabetes.

Dr. John W. Ellis, Killeen, aged 44, died May 11.

Dr. G. W. Satterfield, Dallas, aged 75, died May 16 following an injury received in a fall when he fractured his hip.

Dr. Tom L. Miller, San Antonio, aged 82, died recently.

VIRGINIA

Construction will soon be started at the Virginia Epileptic Colony of a dormitory to accommodate fifty additional women. An appropriation of $42,500 is available for the work. It is understood that a similar appropriation will later be available for a dormitory for men.

The semi-annual meeting of the Viriginia Society of Oto-Laryngology and Ophthalmology was recently held in Roanoke, under the presidency of Dr. W. F. Mercer, Richmond. Dr. E. G. Gill, Roanoke, is Vice-President; Dr. J. R. Gorman, Lynchburg, Secretary-Treasurer.

Dr. R. Lloyd Williams, Norfolk, has been elected to fill the unexpired term of Dr. J. J. Miller, deceased, as Councilor of the Medical Society of Virginia.

(Continued on page 48)

For The Surgeon

Bard-Parker Knife

It's Sharp!

Ask Your Dealer

Bard-Parker Company, Inc., New York

BARD-PARKER KNIFE

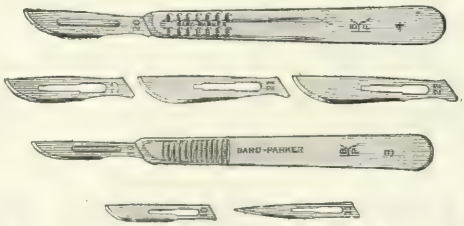
It's Sharp!

Handles All Sizes.

Price $1.00 Ea.

Blades All Sizes.

Per Doz., $1.50.



Genuine Leather Case 2 Handles ½ Doz. Each. All Size Blades Complete $7.50

Case only, $2.00

The price of a new blade is less than the cost of sharpening an ordinary scalpel. The surgeon is thus assured of a knife of standard sharpness, always ready for use. The illustration demonstrates its simplicity, the price its economy.

Blades in packages containing 6 of one size. Order by size number.

Nos. 1 and 3 Handles fit Nos. 10 and 11 Blades.
Nos. 2 and 4 Handles fit Nos. 20 and 21 Blades.

MAIL ORDERS RECEIVE SPECIAL ATTENTION.

DOSTER-NORTHINGTON DRUG CO.

Surgical Instruments and Hospital Supplies

BIRMINGHAM, ALABAMA

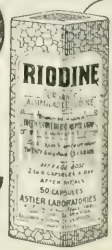
PARIS
45 Rue du Dr Blanche

Laboratoires P. ASTIER
COUNCIL-PASSED PRODUCTS

NEW YORK
171 Front Street

ARHÉOL
THE ACTIVE PRINCIPLE OF SANDALWOOD OIL
DOSE: 10-12 Capsules daily

RIODINE
ORGANIC ASSIMILABLE IODINE
DOSE: 2-6 Pearls daily



Full Data (to Physicians Only) from
Geo. J. Wallau, Inc., [illegible] Cliff St., New York, N.Y.

SAVE MONEY ON
YOUR X-RAY SUPPLIES

Get our price list and discounts on quantities before you purchase

HUNDREDS OF DOCTORS FIND WE SAVE THEM FROM 10% TO 25% ON X-RAY LABORATORY COSTS.

AMONG THE MANY ARTICLES SOLD ARE:

X-RAY PLATES. Three brands in stock for quick shipment. PARAGON Brand, for finest work; UNIVERSAL Brand, where price is important.

X-RAY FILMS. Duplitized or Dental—all standard sizes. Eastman, Ilford or X-ograph metal backed. Fast or slow emulsion.

BARIUM SULPHATE. For stomach work. Finest grade. Low price.

COOLIDGE X-RAY TUBES, 5 styles, 10 or 30 millamp.-Radiator (small bulb), or broad, medium or fine focus, large bulb. Lead Glass Shields for Radiator type tubes.

DEVELOPING TANKS. 4 or 6 compartment, stone tanks. These will end your dark room troubles. 5 sizes of Enameled Steel Tanks.

DENTAL FILM MOUNTS. Black or gray cardboard with celluloid window or all celluloid type, one to eleven film openings. Special list and samples on request. Price includes imprinting name and address.

DEVELOPER CHEMICALS. Metol, Hydroquinone, Hypo, etc.

INTENSIFYING SCREENS. Patterson, TE, or celluloid-backed screens. Reduce exposure to ¼th or less. Double screens for film. All-metal cassettes.

LEADED GLOVES AND APRONS. (New type glove, lower priced.)

FILING ENVELOPES with printed X-ray form. (For used plates.) Order direct or through your dealer.

PARAGON X-RAY PLATES

If You Have a Machine Get Your Name on our Mailing List.

GEO. W. BRADY & CO.
780 So. Western Ave. CHICAGO, Ill.
Southern Branch, 736 Perdido St., New Orleans.

(Continued from page 46)

At present the meetings of the Norfolk County Medical Society are being held in the auditorium of the Chamber of Commerce, fire having recently damaged the Taylor Building, where the meetings have formerly been held. The damage to the Medical Library was covered by insurance.

The R. S. Chew Camp, Sons of Confederate Veterans, was recently reorganized in Fredericksburg. Dr. J. N. Barney was elected historian; Dr. F. C. Pratt, Dr. S. L. Scott, Dr. C. M. Smith and Dr. J. N. Barney, surgeons.

Dr. Percy Harris, Scottsville, has been appointed City Physician of Lynchburg, succeeding Dr. Gilbert Crank.

Dr. W. H. Parker and Dr. Clifton M. Miller, Richmond, have been re-elected school trustees from their respective districts.

Dr. Douglas VanderHoof, Richmond, was elected President of the Virginia Association of the Johns Hopkins Alumni, at the meeting recently held in Richmond.

Dr. Elbyrne G. Gill has been elected President of the University Club, Roanoke.

Dr. T. H. Daniel, Charlottesville, has been elected a member of the Board of Directors of the Rotary Club of that city.

The Virginia Tuberculosis Association is arranging for a permanent organization in each county to deal with the tuberculosis problem. Free diagnostic clinics were recently organized throughout the state. There is a sum of $33,000 left in the local treasuries from the proceeds of the Christmas seal sale for this purpose.

The children's pavilion of the Blue Ridge Sanatorium, Charlottesville, is now ready to receive applications for admission. It will accommodate 45 children suffering from tuberculosis. Applications for admission should be sent to the Medical Director, Blue Ridge Sanatorium, Charlottesville, Va. A campaign to raise $10,000 is also being conducted to erect a chapel at Blue Ridge Sanatorium.

Dr. George T. Harris, Madison Heights, has been elected Vice-President of the Lynchburg branch of the Alumni Association of the University of Richmond.

(Continued on page 50)

LISTERS DIABETIC FLOUR

Strictly Starch-free. Produces Bread, Muffins, Pastry that makes the distressing features of

DIABETES Grow Less and Less

Listers prepared casein Diabetic Flour—self rising. A month's supply of 30 boxes $4.85

LISTER BROS. Inc., 405 Lexington Avenue, New York City

In Childhood

the benefits from wearing

O'Sullivan's Heels

O'SULLIVAN
RUBBER CO., Inc.,
New York

are recognized and appreciated by thoughtful physicians. The light, springy step, the delightful resiliency, and the avoidance of shock and jar, naturally mean much to the active boy or girl.

Thus the child who wears O'Sullivan's Heels will be happier, the structures of the feet will be strengthened, the gait and carriage will be improved, and with elimination of the continual jarring caused by hard leather heels there will be a marked decrease of nervous irritation and tendency to excessive fatigue, with their all too frequent depressive effect on the whole body.

The sum total is more comfort, greater efficiency and a real conservation of health.

Thus it is that O'Sullivan's Heels have come to fill a definite place in the hygiene of childhood.

Important In The Dietary Of The Sick

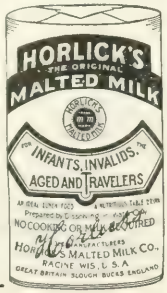
The high nutritive value of Horlick's Malted Milk, and its ease of assimilation, make it especially valuable in fevers, infectious and wasting diseases, and for all those on a prescribed or modified diet.

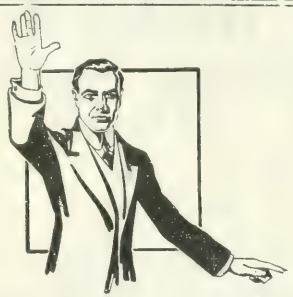
Samples and printed matter prepaid

HORLICK'S

RACINE, WIS.

The Original
Avoid Imitations





SAVE YOUR OLD SURGICAL INSTRUMENTS

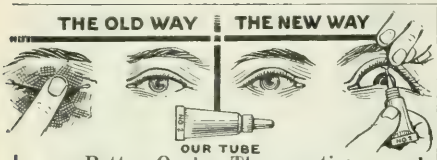
INSTRUMENTS
REPAIRED
RENICKLED
MADE OVER
LIKE NEW

Send them to us: you will be pleased. COST IS SMALL compared with price of new instruments.

The Surgical Selling Co.

All Hospital Supplies

65 FORREST AVE. ATLANTA, GA.



Better Ocular Therapeutics

Can be obtained by the use of "M-E-S-Co" brand of Ophthalmic Ointments. Reasons: Selected Chemicals, Thorough Trituration, Perfect Incorporation, Sterilized Tubes, Boiled and Strained Petroleum, Excellent Service, No Waste, No Dirty Salve Jar, Right Prices. Write for complete information

MANHATTAN EYE SALVE CO., Inc.
Louisville, Ky.

Medical College of Virginia

UNIVERSITY COLLEGE OF MEDICINE
MEDICAL COLLEGE OF VIRGINIA
(Consolidated)

Medicine-Dentistry-Pharmacy

STUART McGUIRE, M.D., Dean

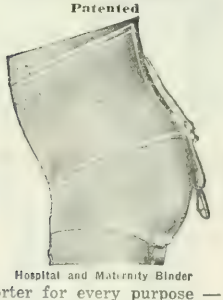
New college building, completely equipped and modern laboratories. Extensive Dispensary service. Hospital facilities furnish 400 clinical beds; individual instruction; experienced faculty; practical curriculum. For catalogue or information address

J. R. McCAULEY, Secretary
1140 E. Clay Street Richmond, Virginia

BOLEN

Abdominal Supporters and Binders

Patented



Hospital and Maternity Binder

A supporter for every purpose — Obesity, Hernias, Post Operative, Ptosis, Sacro-Iliac, Pregnancy, Etc.

Descriptive literature mailed upon request

BOLEN MFG. CO.
1712 Dodge St. OMAHA

(Continued from page 48)

Dr. John Wyatt Davis, for fourteen months surgeon with the marines in the West Indies, has returned to his home in Lynchburg.

Sussex County Medical Society has elected the following officers: Dr. T. M. Raines, Wakefield, President; Dr. J. F. Slade, Stony Creek, Vice-President; Dr. C. P. Neblett, Waverly, Secretary-Treasurer.

Dr. Frank W. Lewis, Morattico, has been appointed Director of the Rural Community Life Campaign of Northumberland County.

Dr. W. B. Porter, formerly associated with Dr. Manfred Call, as a member of the Medical Staff of the Stuart Circle Hospital, Richmond, has gone to Roanoke to become Medical Chief of the Lewis-Gale Hospital.

Dr. George Tucker Harrison, University, has been elected Surgeon of the John Bowie Strange Camp, Confederate Veterans, Charlottesville.

Dr. Benjamin Blanton Dutton, Jr., Winchester, and Miss Anne Lougheed Carson, Riverton, were married April 19.

Deaths

Dr. Joseph Eugene Good, New Market, aged 60, died May 7 from meningitis.

Dr. Robert Gamble Cabell, Jr., Richmond, aged 74, died May 7 at Stuart Circle Hospital, from heart disease.

Dr. Robert Lee Blake, Wilton, aged 47, died April 21 at Baltimore.

WEST VIRGINIA

West Virginia State Medical Association has elected the following officers: Dr. John N. Simpson, Morgantown, President; Dr. Robert J. Wilkinson, Huntington, Dr. Henry H. Hall, Wheeling, and Dr. Walter E. Vest, Huntington, Vice-Presidents; Dr. Robert A. Ashworth, Moundsville, Secretary; Dr. Hugh G. Nicholson, Charleston, Treasurer. Beckley was chosen for the meeting place for 1923.

Dr. L. V. Guthrie, Huntington, Superintendent of the Huntington State Hospital, announces the completion of the $80,000 federal clinic for the diagnosis and treatment of mentally deficient men from the army and navy as a unit of the institution. The building is a colonial structure of red pressed brick and will accommodate about 50 patients. Dr. Guthrie also announces the completion of a new bakery for the hospital with a capacity of 2,000 loaves of bread daily.

The state and county health officials of West Virginia held a meeting recently in Cumberland, Md. The following appointments were made: Dr. Briscoe R. Ransom, Harper's Ferry, appointed to the legislative committee of the State Board of Health; Dr. James H. Wolverton, Piedmont, the preventable disease department; Dr. Samuel B. Johnson, Franklin, administration of public health.

The Beckley Hospital, formerly owned by Dr. J. E. Coleman and Dr. Robert Wriston, has been sold to Dr. J. H. McCullough, Charleston, and Dr. A. U. Tieche, Winding Gulf. The institution will be remodeled. Dr. A. H. Grigg and Dr. Charles S. Smith will be associated with Dr. McCullough and Dr. Tieche.

Dr. Floyd F. Farnsworth, Charleston, has resigned as Director of the Bureau of Venereal Diseases.

Dr. Arthur Bryan Carr, War, and Miss Annie Crenshaw Armstrong, Richmond, Va., were married April 20.

Deaths

Dr. Samuel Lawrence Jepson, Wheeling, aged 80, died suddenly May 2 from cerebral hemorrhage.

Dr. James Warren McCoy, Twin Branch, aged 68, died March 18 after an illness of three days from pneumonia.

Dr. Melvin P. Malcolm, Charleston, aged 54, died May 12 from chronic nephritis with complications.

CLASSIFIED ADVERTISEMENTS

ASSISTANT WANTED Wanted, physician with experience in general practice to do office, x-ray and laboratory work in Virginia, small town. Will arrange all training needed. Moderate salary, which will begin on start. Prefer a man who cannot get about or who does not like general practice. Send recommendations with first letter. Address K. B., care of this Journal.

LOESER'S INTRAVENOUS SOLUTIONS

INTRAVENOUS INJECTION
IS A SERIOUS PROCEDURE
THAT REQUIRES

FIRST: Selection of Standardized Solutions, from a Reliable Laboratory.

SECOND: Full Knowledge of the Contents of the Solution.

Half secret compounds, unscientific gunshot combinations, specialties and low priced substitutes are out of place in intravenous medication.

Loeser's Intravenous Solutions are not "cures" or "specifics," but simple scientific solutions of U.S.P. and standard remedies of established therapeutic value.

The contents are plainly stated on the label, free from ambiguity, mysticism and charlatanism. They are standardized by chemical, physical and animal tests.

Clinical Reports, Reprints, Price Lists
and
"The Journal of Intravenous Therapy"
will be sent to any physician
on request

New York Intravenous Laboratory

100 West 21st Street

New York, N. Y.

Producing Ethical Intravenous Solutions
for the Medical Profession Exclusively.

MORE people die from pneumonia than any other disease.

Approximately 25 out of every 100 cases end fatally. Dr. Gustav Goldman has demonstrated that at least twenty of these twenty-five deaths may be prevented by employing Bacterial Vaccines. Why delay and chance a fatal termination?

Dr. Gustav Goldman's article appeared in American Medicine, March, 1921

Bacteriological Laboratories of

G. H. SHERMAN, M. D.
DETROIT, U. S. A.

Medication for Hypodermic Treatment

Sterile, Accurate, Efficient. In Hypule Form

Sodium Cacodylate, Mercury Binlodide, Mercury Salicylate, Iron Citrate, Iron Citrate and Sodium Arsenate, Emetine Hydrochloride, Fisher's Solution (concentrated), Gray Oil, Novocain and 80 other formulae.

These hypules not only insure full potency and exact dosage of the drug to be administered, but they afford the physician an aseptic, and readily assimilated solution or suspension. For treatment in serious and malignant diseases, hypodermic medication is far superior to the indirect methods of absorption through the alimentary tract. The use of **HEISTER'S HYPULES** places this form of medication on a scientific basis, relieving the practitioner of all anxiety as to the quantity or character of the hypodermic injection which he administers.

From the Laboratory of

LOUIS HEISTER

Manufacturers of Physician's Pharmaceutical Specialties In Hypule Form

List on Application **CINCINNATI, OHIO, U.S.A.**

SURGICAL INSTRUMENTS

THREE REASONS TO SEND US YOUR ORDERS—

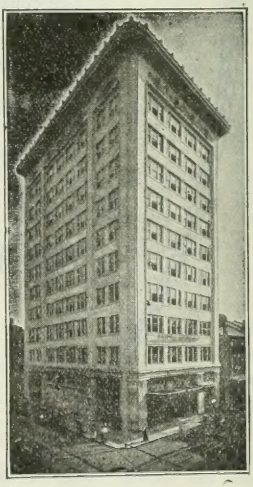
1. We carry a large stock. You are certain to have them filled.
2. We sell only goods of quality. We do not handle seconds.
3. We give prompt service.

Mail, Wire or Telephone Us Your Needs Today.

VAN ANTWERP'S DRUG CORPORATION

Surgical Instruments and Supplies.

Mobile, Alabama



VAN ANTWERP BUILDING

MEAD'S

Diarrhoea in Infants

"The thing that often eludes us after years of experience with many babies is knowing **WHEN TO FEED WHAT.**"—Dr. Lewis Webb Hill.

A TIMELY SUGGESTION

When loose green acid stools appear consider discontinuance of the food that the baby has been taking and the feeding of

PROTEIN MILK

PROTEIN MILK is easily and quickly prepared in the home by the use of

MEAD'S CASEC

Cow's Milk and Water

When the diarrhoea is corrected (with CASEC mixture), the baby may be successfully fed on the proper proportions of MEAD'S DEXTRI-MALTOSE, cow's milk and water.

Full literature on CASEC and MEAD'S DEXTRI-MALTOSE sent immediately on request.

MEAD'S DEXTRI-MALTOSE for average infant feeding.

The Mead Johnson Policy

Mead's Infant Diet Materials are advertised only to physicians. No feeding directions accompany trade packages. Information regarding their use reaches the mother only by written instructions from her doctor on his private prescription blank. Literature furnished only to physicians.

MEAD'S CASEC for babies with diarrhoea.

MEAD JOHNSON & COMPANY, EVANSVILLE, INDIANA

CHLORETONE
the *sensible* hypnotic

THE frequency with which you find indications for the exhibition of hypnotics makes it essential that your favorite remedy in this class be broadly serviceable—produce results you can count on, and give rise to a minimum of discomfort.

That's why many of your fellow practitioners have for years relied on Chloretone.

Prescribe Chloretone in doses of 5 to 20 grains—always in capsules, because the crystals are volatile. Prescribe the larger doses in cases of delirium, convulsions, uremia, tetanus, and hydrophobia. The smaller doses are required in cases of insomnia and restlessness, and in the symptomatic treatment of epilepsy. Chloretone is especially efficacious in combating seasickness and gastric irritability.

Parke, Davis & Company

New Publications

The 1922 Catalogue.

A Booklet on the subject of Pertussis Vaccines.

Gladly sent physicians on request.